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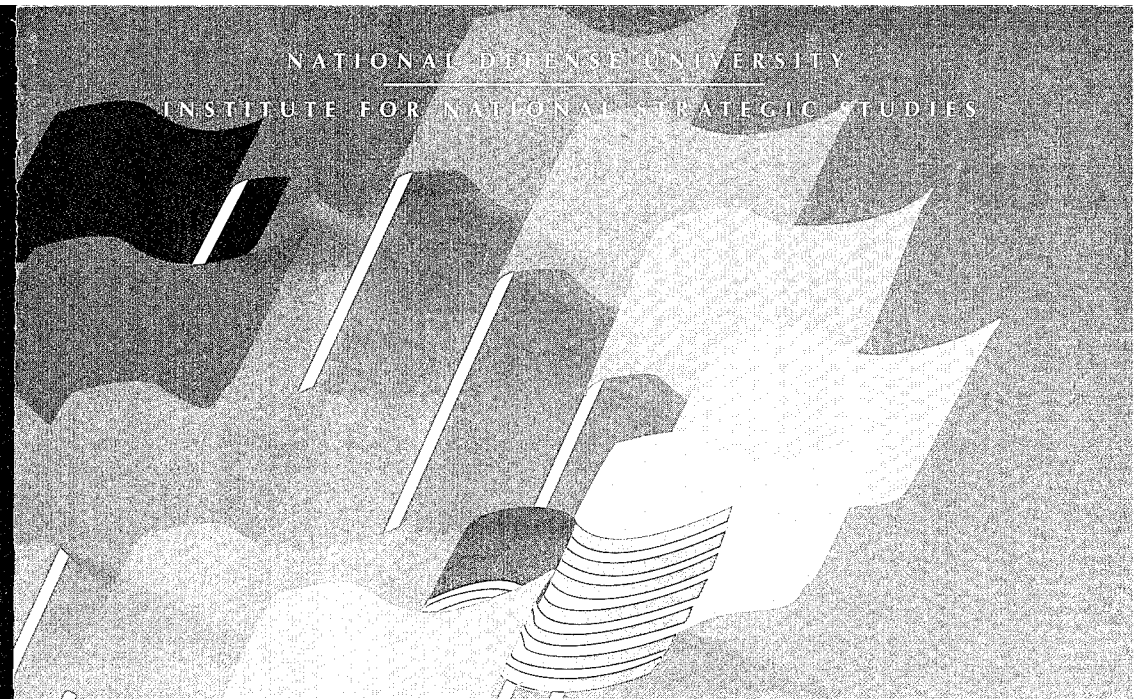

COALITION Command and Control

Martha Maurer

THE CENTER FOR ADVANCED
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Key Considerations

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Summary

The future security environment will be more complex as more regional powers emerge, each with its own expectation of independent decisionmaking. U.S. strategy, as presented in the *National Military Strategy* (1992) and other statements, addresses a continuing requirement to be ready for unilateral action. It also outlines the expectation that the United States will continue to lead in efforts supporting global peace and security using forward presence, crisis response, and multinational operations.

After the Gulf War, some political-military analysts and national leaders saw ad hoc coalitions as the wave of the future. Others, seeing the difficulties of planning for an ad hoc operation, disagreed and instead supported a decrease in U.S. security involvement with other nations. World events subsequently showed the necessity of being prepared to work with allies not part of established regional security arrangements. Although not a first choice, the possibility of ad hoc coalition operations is now recognized as an option.

Specific and focused coalition planning can more clearly define the role of the military and the options the military provides to the President for foreign policy in a multipolar world. Such planning also would make the military more effective and responsive in a coalition operation. While some see a more unipolar world, and the U.S. may be the biggest, toughest guy on the block, plenty of other nations are in positions two, three, and four.

This paper examines the many factors that influence command and control of coalition operations. Here "command and control" refers to the overall process and is not just the short form for "command, control, communications, computers, and intelligence" (C^4I).

The factors considered include the nature of a coalition itself, generally transitory. Previous coalition operations were created out of necessity. Such coalitions generally ended as soon as their

immediate purpose was completed, although some evolved to become more structured or permanent alliances. Regardless, a way to function must be available to operate effectively together when common interests unite a group of nations in response to a crisis that requires immediate action.

A brief review of command and control as impacted by coalition operations shows that every aspect of the command and control process will be complicated. As coalition forces become more integrated, command and control becomes more complex. It would be helpful to consider how integrated the allies should be in order to be effective and what organizational structure would enhance operations and tactical effectiveness.

A number of external factors are important to take into account. These include economic, political, cultural, philosophical and religious issues that can influence virtually every area of a coalition operation.

Commanders will need to be prepared to interact with their coalition counterparts, understanding what motivates and guides those counterparts. Nations have differing strategic visions which can complicate operations. The ability to negotiate and problem-solve in an environment of potential international misunderstanding is increasingly important.

Factors associated with coalition operations affect every practical aspect of a campaign: the operation itself, logistics, intelligence, communications, and support functions. Military planners will need to consider these at some time during planning and execution of a coalition operation. Determination of constants that provide a baseline of activity and requirements would significantly enhance preparation and effectiveness of coalition operations.

The U.S. military, like the military of most nations, plans primarily for unilateral action in defense of its own interests. This self-reliance is reflected in current doctrine. However, faced with the possibility of more coalition operations, planners can either do nothing or investigate and prepare as well as possible for the tasks. Development of coalition doctrine could be accomplished along the lines of efforts to enhance joint doctrine. Efforts to develop coalition doctrine have recently begun. Ways to enhance coalition training are needed to ensure doctrinal feedback.

Ensuring interoperability of coalition force will be the biggest challenge, especially because of the ad hoc nature of many future coalitions. It is necessary to determine the level of interoperability needed in doctrine and procedures, as well as equipment interoperability. Is there a minimum baseline? Security assistance is already playing a role in this area. Presuming a major U.S. role, are there ways to facilitate agreement for desired doctrinal policies and procedures by coalition members? These must be shown to be in their best interest, benefitting them as well. It would also be useful to locate areas where the United States could be flexible.

This paper uses a question-and-suggestion format to lay out the key areas for consideration. Providing final answers was avoided in order to encourage innovative thinking. Although much of the material used is from the Cold War era or concerning *Desert Shield/Desert Storm*, the key considerations for coalition operations are considered to be "timeless" and not tied to those examples. Study of these considerations in context of more recent U.S. participation in coalition operations, as well as other countries' experiences, would assist development of answers to the questions asked throughout the paper and in outlining tenets for success.

The primary goal is to give the National Command Authority reasonable options at every stage of conflict. A general change in mindset about accepting or seeking use of ad hoc coalitions instead of relying on established coalitions may be occurring. In addition to improving U.S. abilities to function in a coalition environment, openness about our abilities, in conjunction with openness by other nations, may deter further large-scale acts of aggression and can promote world cooperation.

COALITION COMMAND AND CONTROL

Key Considerations

1. *Why Coalitions?*

The first coalition war operations may well have occurred as far back as the Stone Age when two groups joined to defeat a common enemy. Since then, loose alliances have formed for similar purposes throughout the history of conflict. Interestingly, there are striking similarities between such loose alliances and the worst-case scenario of an ad hoc coalition of today: different communications, different standards for procedures, and no joint training or common plans. And the alliance was temporary, without guarantee that today's ally will not be tomorrow's enemy. Of course, many changes have occurred since then, changes that will both complicate and promote future coalitions.

The world order established in the late 1940s started undergoing a significant change in the 1980s. The Cold War ended, various countries attempted to seize regional power, and nationalistic and ethnic efforts toward self-determination and self-government were born. As a result, according to current thinking, future conflicts will be more localized,[1] and global war is now seen as a "very, very remote possibility."[2]

The role of force is under review during this time of transition. Other aspects of international relations are recognized as increasingly important, such as the formation of economic blocs for power, Third World development, trade deficits, and environmental concerns. The desire to spend larger shares of national budgets on nonmilitary items is reducing the size of many of the world's armed forces, primarily those that were justified by the Cold War. Yet many other countries, notably those in the Third World, are building their forces. Some think economic coercion may usurp part of the role of the military, but sanctions and economic force generally are not very effective for quick response, and a viable military force is still necessary. These changes, plus an emphasis on developing regional solutions to conflicts, have called for the military to prepare to

participate in coalition operations, even when it is not yet codified in doctrine.

Most governments and U.S. strategists concede that with the breakup of the former Soviet Union, the United States emerged as the only national power capable of large-scale global military action.[3] Those who question this premise expect the U.S. position to change over the next ten years.[4] Resolution of that question lies in the future. Regardless of one's view of U.S. superpower status and its incumbent responsibilities, recognition of America's commitment to international security and peace, along with an increasing perception of world economic interdependence, suggest that the United States will continue to be a major player in world conflict. This view is reflected in the *National Security Strategy* (1991), which recognizes that "our strategy is increasingly dependent on the support of regional friends and allies" and that the United States needs to support and enhance regional security agreements, alliances, and involvement.[5] Support of regional security agreements was restated early in 1992 in a purportedly leaked copy of the *Defense Planning Guidance for Fiscal Years 1994-1999.*[6] Subsequent strategic planning documents continue to support regional security.

In addition to being driven by political, military, and budgetary necessity, coalition efforts are increasingly viewed worldwide as a desirable method of dealing with global crises or issues. In the long term, there will be less tolerance worldwide for unilateral U.S. action, and a large U.S. presence may be less significant than security arrangements that are more cooperative.[7] It has been suggested it is in America's interest to encourage cooperative agreements among groups of countries.[8]

For reasons of international and domestic politics, as well as logistical and military considerations, an appropriate response to conflict in the future may well involve an ad hoc coalition of nations working together to resolve it. Because such alliances may not be based on standing agreements, they will require flexible and tailored response capabilities in speed, size of force, and cooperation between the countries.

With these changes as background, the U.S. military must be ready to function effectively with unaccustomed partners. *Desert Shield* and *Desert Storm* are examples of coalition operations that were successful, although these operations were primarily U.S.

led and not coalitions of equal partners. In this case, there was sufficient time to prepare for the war engagement. Aspects of a *Desert Storm*-type operation may not happen again.

Coalitions occur because an outside requirement overrides the inherent difficulties of creating and sustaining the coalition itself. Many unknowns can exist in coalition planning, such as where, with whom, against whom, and how long. This is exacerbated in an ad hoc coalition. On-the-spot cooperative decisions with other countries may be necessary. Within the definitions of the words "coalition operation" is a sense of anticipated or perceived difficulties. Historically, coalition operations have ranged from failure to success. Occasionally, what was anticipated to be a short-term coalition evolved into an established and organized alliance, becoming longstanding, seemingly permanent fixtures on the international scene. Others, however, were as short-lived as a single mission.

Current U.S. doctrine and policy do not clearly or completely address coalition operations. If planning for coalition operations is perceived as too difficult or complicated, even general preparatory planning may be neglected. However, if this option is required, senior leaders want to be able to use it effectively. Identifying the issues surrounding coalition operations, along with the main contributing factors, is a first step in determining if national-level guidance, as well as doctrine or comprehensive guidelines for military planners, is necessary or possible. Since the first draft of this paper, independent efforts have begun to address coalition doctrine, generally referred to as multinational doctrine.[9] National Defense University proposed development of a joint publication that specifically addresses multinational operations. This proposal was approved in April 1994 and the project continues.

This paper provides a macro look at coalition operations and presents a broad outline of the key factors affecting command and control of coalition forces. Emphasis is placed on the ad hoc nature of potential future coalitions. Possible policy questions and issues covering both short- and long-term actions are discussed, with focus on factors that substantially impact command and control, excepting issues specifically dealing with nuclear war.

Because of past U.S. practice, much of this paper reflects the view that the United States will be the primary leader or at least

share the leadership position. However, that role is not guaranteed, and ramifications of the United States occupying a supportive or minority position are occasionally discussed.

This discussion primarily seeks to identify the important questions. Final answers to most of these questions are not provided in the interest of promoting innovative approaches. Implicit in some of the questions, however, are the seeds of ideas that might eventually sprout into answers. It is hoped that this question format will stimulate others to study specific questions or areas and do the in-depth review necessary to determine what policy, procedures and guidelines can be developed. Application of functional expertise, use of historical comparison and knowledge of current procedures will facilitate these efforts. Since many factors discussed share a complex interrelationship, awareness of the key considerations presented here and the overall context of coalition operations will also enhance the results of such efforts.

The command and control of coalition forces has many challenges, and one of the most important needs is good guidelines, which make any task more manageable. Concentrated study and focus on coalition operations, as described in this paper, are still in the early stages. It was encouraging that the National Defense University began a series of symposia in 1993 concerning multinational operations and the role of the United Nations. Other unrelated efforts were initiated during the time this document was prepared.[10] Additional work in this area will assist the military in improving command and control during coalition operations.

One final note: Although "command and control" is often used as a short form for "command, control, communications, computers and intelligence" (C^4I), this paper emphasizes the first two "Cs," the overall process.

Notes

1. The White House, *National Security Strategy of the United States* (August 1991), 28.

2. General Colin Powell, Chairman, Joint Chiefs of Staff, speech to The Atlantic Treaty Association, 9 Oct. 1991, transcript, *Current*

News Supplement, American Forces Information Service (10 Oct. 1991), A-13.

3. The White House, *National Security Strategy of the United States* (August 1991), 2.

4. Patrick E. Tyler, "Senior U.S. Officials Assail Lone-Superpower Policy," *New York Times,* 11 Mar. 1992; Barton Gellman, "Aim of Defense Plan Supported by Bush," *Washington Post,* 12 Mar. 1992.

5. The White House, *National Security Strategy of the United States,* (August 1991), 1-7, 9-10, 28.

6. "Pentagon redefines its aims," *Boston Globe,* 24 May 1992; Jurek Martin, "Pentagon reshapes its strategy," *Financial Times,* 26 April 1992.

7. Catherine McArdle Kelleher, "The Changing Currency of Power: Paper I," *Current Strategy Forum 1991: Selected Readings* (U.S. Naval War College, 1991), 31.

8. Ibid.

9. Inclusion of multinational operations ranges from one sentence in Joint Pub 1-05, Religious Ministry Support for Joint Operations (3 August 1993), to separate chapters (with other references throughout the publication) in Joint Pub 2-0, Joint Doctrine for Intelligence Support to Operations (12 October 1993), and Joint Pub 3-0, Doctrine for Joint Operations (9 September 1993). Other publications are under revision. The Services have begun to address this area. Army publication Field Manual (FM) 100-5 Operations (June 1993) mentions the need to operate as part of joint and multinational staffs, as well as in unfamiliar coalitions (pg 1-4, 1-5 and 2-2). Analysis of the completeness of these publications in reference to coalition operations is not addressed here since these efforts are just beginning.

10. Recommend reading "Principles for Coalition Warfare," by General Robert W. RisCassi, in *Joint Force Quarterly* (Summer 93), 58, for an excellent overview of this subject.

2. Coalition Operations

Therefore I say: Know your enemy and know yourself; in a hundred battles you will never be in peril. When you are ignorant of the enemy but know yourself, your chances of winning or losing are equal. If ignorant of both your enemy and of yourself, you are certain in every battle to be in peril.

Sun Tzu, *The Art of War*[1]

What Is a Coalition?

Traditionally, governments and militaries prefer unilateral action and control. Although they may accept coalition arrangements, these are usually created to deal with a threat too big for one nation to stand against. This was true of the various "democratic" alliances begun in response to the Cold War, which probably lasted far longer than their originators expected. Since the Cold War ended, these are in the process of redefinition of purpose and focus. Possibly as a result of this recent experience of long-standing alliances, for a while the term *coalition* was strongly associated with quasipermanent arrangements. This paper uses the term in its temporary sense.

Is a new mind-set needed? Will we be able to learn from the Cold War era but not require that formal alliances be established before we begin planning, training, and equipping forces for a yet unknown coalition operation?

A brief analysis of the word *coalition* from the *American Heritage Dictionary* reveals inherently opposing forces. These are evident in the following expanded version of the definition, which highlights (in the author's italics) the essential features of a coalition:

> **Coalition**: 1. an alliance (formal pact of union or confederation between nations in a *common cause*), esp. a *temporary one*, of factions (group of persons forming a *cohesive, usually contentious minority* within a larger group), parties (permanent political group organized to *promote and support its principles* and candidates for public office), or nations (primarily signifies

> a political body rather than a physical territory—the citizens united under *one independent government*, without close regard for their origins; secondarily denotes institutional ties, *a community of economic and cultural interests*). 2. a combination into one body; union (a combination so formed, esp, an alliance or confederation of persons, parties, or political entities for *mutual interest or benefit*).[2]

Within a coalition, common cause and mutual interest are balanced against minority views and national interests. One body has one head and one perspective, but a coalition has many heads and many national views reflecting economic, cultural, and institutional differences. The motivation and self interest that underlie the development of a coalition must be powerful enough to counter the forces of separation. Yet, divisiveness remains part of the nature of the coalition and that tension must be acknowledged.

Although this study mentions established international relationships, the definition of coalition used here is not limited by the confines of such an alliance. It is closer in meaning to a "combined" operation—that is, "between two or more forces or agencies of two or more allies."[3] No previous level of interaction or future intent is stipulated in this definition. Nor is a continuing permanent relationship of all the coalition partners implied or expected. In this context, coalition refers to two or more nations' militaries working together to support a specific objective. This approach should facilitate a discussion of generic issues surrounding and integral to any coalition operation.

Manageable Diversity or Morass?

A coalition may support many types of operations, from peacetime engagement (including humanitarian operations and nation-building activity) to peacekeeping efforts, to participation in low-level conflict and small regional crises, to a full-theater or nuclear war. In each case, there are varying levels of national effort, and that of the U.S. military might range from minimal to maximal participation. The level of planning and procedures for a coalition operation depends on where the operation is located on this spectrum of engagement. Each coalition operation has its own personality, with different traits and characteristics.

Figure 1 lists possible characteristics of a coalition operation, separated into arbitrary categories. Some characteristics reflect the environment or situation of the operation, others, the participants and their level of involvement. The ability of the United States to influence these characteristics varies greatly. Generally, influence increases toward the right of the figure. For example, although the season and weather cannot be controlled, delays might be created or arranged in order to begin operations in favorable weather. As with the weather, U.S. influence on allies depends on a host of variables.

Although other information could be added to this introductory list of variables, figure 1 is designed to illustrate only that any coalition involves a combination of characteristics that affect planning, and command and control requirements. An operation that endures over a long period of time may advance through levels of effort and stages of conflict involvement. The planning and support needed for a day-to-day operation differ from that needed for an operation lasting several weeks or longer. The challenge of planning in the absence of a local infrastructure available and capable of absorbing an influx of people presents a situation different from when an infrastructure exists. An ad hoc operation further stresses the command and control system and process in relation to its timing and to the uncoordinated collection of possibly temporary allies.

Desert Shield/Desert Storm and Operation *Sea Angel* are examples from the early 1990s of the possible variety of coalition operations. In brief, the former occurred in response to a regional dictator based in Iraq. There was advance warning of activity and time to prepare; combined forces of 37 allies conducted air, land (desert), and sea operations; host support was extensive; and the command and control was coordinated rather than integrated, i.e., there were two separate command and control centers, one for the United States and its NATO allies, the other for the Saudis and their Arab and Islamic allies.[4] The second example, Operation *Sea Angel*, was conducted in response to a sudden natural disaster in Bangladesh. It was a coastal maritime operation; because the remaining host infrastructure was unable

Figure 1. *Possible characteristics of a coalition operation*

(Less influence) — ***Increasing Ability of United States to Influence:*** — *(More influence)*

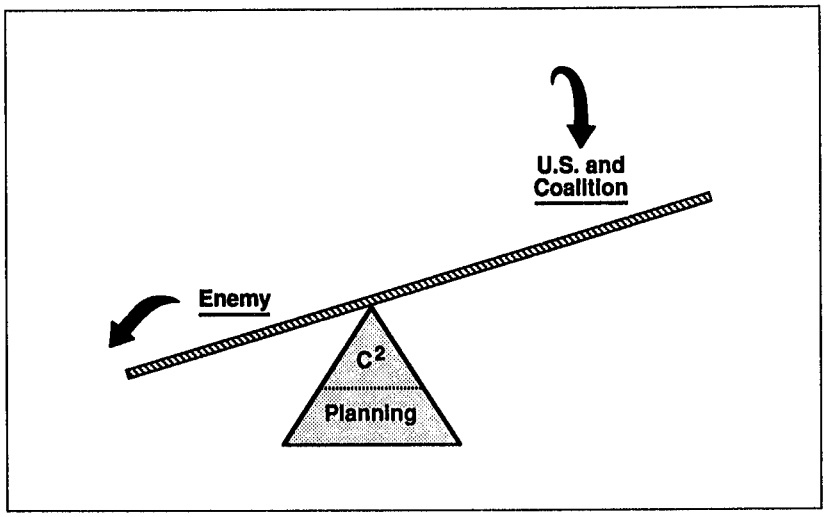
Enemy or Event	Environment	Situation	Allies	C² of Execution	Planning	United States Role
One enemy/situation, or many? **Coalition's objective:** • Restoration of government • Humanitarian mission? • Support allies? • Defeat enemy? **Natural Disaster** • Type? – flooding – hurricane – famine – earthquake • Continuing event or single instance? • Urgency? • Numbers affected? **Political or military situation of the enemy** • Rich or poor? • High- or low-tech? • Many or few forces? • Alone or in alliance?	**Geography** • Sea? – littoral – blue water – polar • Land? – mountain – jungle – desert – coastal **Climate** **Season** **Distance from U.S. or coalition allies** **Population density** • Urban? • Rural? • Isolated?	**Warning** • Sudden or advance notice? **Duration** • Short or long? **Operations size** • Small or large? **Host or no host?** **Infrastructure** • Nonexistent or extensive? • Available or not?	**Who** • Prior long-term alliance? • Bilateral agreements? • Friendlies but distant? • Prior strained relations? • Prior enemies? • Unknown intentions? • Mixed bag? **What** • Force capabilities? • What will be supplied? • Procedures and doctrine? **Intentions of allies** • Known? • Unknown?	**Command** • U.S.? • Combined? • Other? – U.N. – allied **Level of integration** • All? • Allies only? • Partial or sector operations? • None?	**Control of plans** • U.S.? • Combined? • Allied? • Ad hoc or established? **Available plans** • Already developed? • Partially developed? • All ad hoc? **Mission** • Offensive or defensive? • Occupation? • Simple or complex goal?	**Resource applied** • All available for use? • Selective use? – only money – by Service – by function – equipment only

to handle the forces helping, the operation was executed from ships; the number of allies was small; the United States ran the operations at the request of the Bangladesh government but used local officials to interact with the people; U.S. on-site participants were mostly Marine and Naval forces; and primary support was in the form of food, equipment, and transportation.[5]

In addition to the variables shown in figure 1, any coalition operation can be overlaid with regional variations of politics, ethnic and cultural values, and religious influences. These differences may extend into the command and control arena. Different philosophies of life or world view (Western, Asian, Arab) may influence national theories of command and control and, therefore, of military doctrine. These points are elaborated in chapters 4 and 5.

Because of the nature of ad hoc coalition operations, the U.S. military needs to plan to face an unknown enemy, with unknown allies, in an unknown conflict, and on short notice. This requirement places an especially high premium on comprehensive planning. Just as the placement of a fulcrum

Figure 2. *Applying force: Where and how much*



(figure 2) affects the amount and location of force needed to move a particular object, so the design and effectiveness of coalition command and control will affect where and how much force can be applied against an enemy. Along with good intelligence and warning, effective planning and forethought are critical in coping with any potential coalition that may suddenly arise. Concepts discussed in this study may apply to the entire spectrum of military operations, but the focus is on those command and control issues that affect the ability of the military to meet the demanding challenges posed by coalition operations.

Notes

1. Sun Tzu, *The Art of War*, trans. Samuel B. Griffith (Oxford University Press, 1963), 84.

2. *The American Heritage Dictionary* (Boston, Mass: Houghton Mifflin, 2nd ed., 1985) s.v. alliance, 95; coalition, 285; faction, 485; nation, 831; party, 906; union, 1322.

3. Joint Pub 1-02, *Department of Defense Dictionary of Military and Associated Terms* (Joint Chiefs of Staff, 1 December 1989), s.v. combined, 76.

4. Major General Paul Schwartz, "Coalition Coordination, Communication and Integration Center: Operation Desert Storm," *Seminar on Command, Control, Communications, and Intelligence* (Cambridge, MA.: Program on Information Resources Policy, Harvard University, Spring 1991), pending publication.

5. Lt.Gen. Henry Stackpole, Deputy Chief of Staff/PP&O, USMC, speech to the Naval Expeditionary Forces and Power Projection: into the 21st Century Conference, 21 November 1991, and Conference Paper Summary (International Security Studies Program, Tufts University).

3. "Coalition C^2" versus "U.S.-Only C^2"

From Plato to NATO, the history of command in war consists of an endless quest for certainty—certainty about the state and intentions of the enemy's forces; certainty about the manifold factors that together constitute the environment in which the war is fought, from the weather and the terrain to radioactivity and the presence of chemical warfare agents; and last but definitely not least, certainty about state, intentions, and activities of one's own forces.

Martin Van Creveld, *Command in War* [1]

It is necessary to discuss what might happen when the U.S. command and control process confronts the needs of an ad hoc coalition operation. This chapter suggests points for consideration. Because other sources present basic command and control issues in detail, only a brief discussion is included here.[2] The chapter closes with a review of the impact of coalition characteristics on command and control.

U.S. Command and Control

The term command and control is defined in the *Department of Defense Dictionary of Military and Associated Terms* (Joint Pub 0-1):

> **Command and Control**: The exercise of authority and direction by a properly designated commander over assigned forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission.[3]

The process of command and control involves gathering information, assessing the situation, identifying objectives, developing alternative courses of action, deciding on a course of action, transmitting orders that can be understood by recipients, and monitoring execution.[4] This straightforward definition becomes more complex when command and control is applied to a coalition operation.

Impact of "Coalition" on Command and Control

Each element of the JCS definition, when analyzed with respect to a potential coalition operation, can be matched with a series of broad questions:

The exercise of authority

Who defines the limits of authority? Who is the authority?

and direction

What and who establishes the correct direction, legally, morally, and militarily?

by a properly designated commander

Who properly designates the commander? Will it be a singular or a shared command?

over assigned forces

What are the assigned forces? Where do they come from? What is their composition, level of skill, training? What is their equipment like; is it interoperable or compatible?

in the accomplishment

How is the path of accomplishment developed or chosen?

of the mission

What defines the mission? When is the mission over? Who decides the determinant of success?

Command and control functions are performed...

Are procedures, intent, and methods the same or different from each other?

through an arrangement of personnel,

How many from each participant? What is their language, ethnic, and religious background? Do they have any sensitivities? How well trained are they? What is their style of operation? Are they previous allies or new, temporary partners?

equipment,

What and how much equipment is available? What condition is it in? Are supply requirements different? Is it suited for this operation? Is it also in use on the enemy side? Where is it currently located? Is it all compatible?

communications,

What languages are involved? What support infrastructure exists or will be provided? Is host support extended equally to all participants? What is the variety of protocols and standards? What variation of capability exists? Is the total capability either interoperable or compatible[5]? Is security an issue—how much of it is needed?

facilities,

Where are these located? Any restrictions on their use? What are their capacities or limitations?

and procedures

How disparate are procedures? How are common procedures established?

which are employed by a commander

What is the command arrangement? How will commands be distributed? Will one commander be acceptable to the United States and to the allies? Who will the commander be?

in planning,

Who will do the planning? Will it be a group effort? Who will take the lead? Is there a conflict of planning styles? How much time is there to plan?

directing,

How (by what methods and channels) will guidance be distributed? Will all parties accept it?

coordinating,

What new channels of communications must be established? Will services be provided across established group lines? Are forces maintaining unit integrity or integrated with each other?

and controlling forces and operations in the accomplishment of the mission.

What are the distinctions of operational control and administrative control? Are there any hidden national agendas? What is proof of completing the mission? Who decides? Who goes home first? What accountability measures must be taken?

An analogous look at statements about the command and control process provides insight into the pervasive impact of coalition operations on command and control.

> The command and control process is characterized by the *reduction of uncertainty* and consists of *making situation assessments* and *operational decisions,* and of *establishing the organization* . . . is closely *related to the military planning process* and relies on the *shared understanding of separated commanders,* an understanding that itself *relies on doctrine, teamwork, and early information exchange."*[6] "Much of the command and control effort is directed toward the reduction of both time and uncertainty . . . as a means of *facilitating intelligent decision making.*[7] [emphasis added]

The emphasized phrases are discussed in the remainder of this chapter. National military operations are based, at least in theory, on considerable prior training that imbues all the emphasized terms with meaning.

Unified Action Armed Forces

The challenge is clearly summarized in the Joint Staff Publication, *Unified Action Armed Forces*: "Sound command organization

should provide for unity of effort, centralized direction, decentralized execution, common doctrine, and interoperability."[8] This unity, difficult for joint operations to achieve, is an even greater challenge for a combined or coalition operation, particularly one that is ad hoc.

In the 1920s, the concept of "unity of command" was threatening to traditional U.S. Service autonomy even though it was between the forces of one country.[9] Coalition allies may react similarly, particularly those with little experience in a coalition. It may also be threatening to U.S. leadership if the lead for the "unity of command" is in other than U.S. hands. How would U.S. leaders, as well as Congress and the American people, respond to a call for U.S. support without U.S.–dominated leadership? How does the U.S. allay the concerns of other countries about placing their forces under command other than their own (particularly countries that do not have a history of close relationships with the United States)? What would the United States find acceptable in a corresponding situation?

In the past, "Service traditions and strength of Service command lines act[ed] at cross purposes to the idea of multiservice command," because the Service command retained responsibility for discipline and personnel administration.[10] The Goldwater–Nichols Department of Defense Reorganization Act of 1986 (the Goldwater–Nichols Act) was passed to address the problem of the precedence of Service interests over defense roles and missions that often required joint preparation and action.[11] As a result, Joint preparation has improved even though the Services currently retain these personnel responsibilities mentioned above. In past alliances and combined operations, these responsibilities remained solely under the respective separate national authority. There is no Goldwater-Nichols Act for coalition operations. If a coalition achieves unity of command or in a situation where forces are highly integrated, either under U.S. or non-U.S. command, new arrangements may be needed to ensure that responsibilities of discipline and personnel administration are met. Albeit unlikely, it may be wise to consider the possibility that a foreign government might undertake disciplinary action concerning any of the forces under its command. Conversely, should such action be necessary, could

U.S. leadership impose discipline on integrated forces from another nation when ultimate authority over those forces lies with the other nation? How would this be done?

Several other principles dating from 1927, when the U.S. military edged toward joint operations in order to coordinate armies and navies to pursue common objectives, may also be useful to study. In addition to "unity of command," these include the possibility of "close cooperation" and "limited unity of command."[12] Considering these principles as alternatives may provide the necessary parameters to discuss coalition organizational alternatives and provide a framework within which coalitions can operate. In addition to unity of effort, there is a need for common doctrine and interoperability, which is discussed in more detail in chapter 7.

Organization

> The revolutionary system of command employed by Napoleon was the outcome not of any technological advances. . . . but merely superior organization and doctrine." He organized in such a way as to tolerate a higher degree of uncertainty than his opponents.[13]

From historical study, students of command and control have identified basic tenets of organization, such as a need for low decision thresholds, for vertical reporting and information flow, for leadership to search for more information than what is sent, and for informal and formal networks of communications.[14] The same organizational requirements exist for a coalition operation as for a unilateral U.S. operation.

The structure of the organization has great impact: "the greater its stability, the better acquainted individual members are with each other, and the stronger their mutual trust, the smaller the demand for regulations, standard operating procedures, orders, and reports, and, conversely, the easier the percolation of required information among men and units."[15] The challenge will be to get there prepared rather than leaving each operation's commander to develop an organization on the spot. What kind of training and preparation fosters this mutual trust, knowledge, and understanding in a coalition? How much time is needed? How far down in the ranks does the training need to go?

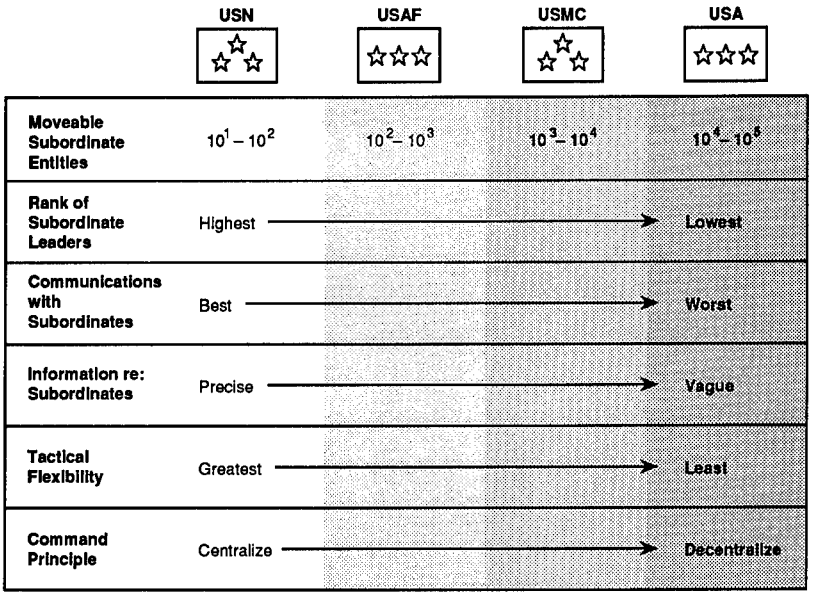
As many military theorists and historians from Clausewitz to the present have said, definitive planning for an unknown crisis, against an unknown enemy, with unknown allies, is close to impossible. Determining the possible command and control requirements for such an amorphous situation requires creativity and extrapolation from known situations and lessons. This process is reminiscent of what some viewed as necessary for establishing U.S. wartime command and control in the past. Because the peacetime command and control structure was probably only partially useful in war, it therefore was taken apart to bridge the Service cultures, to identify its nonutilitarian aspects, and made to work in war. In a coalition operation, current command and control structures must be adapted to bridge coalition cultures, using those aspects that work for the coalition.

A combined operation must take into account the need for multiple cultures to plug into the command and control structure and for the U.S. command and control structure to mesh together with that of other parties. Even coming to an agreement about what should be addressed in discussions of command and control may be difficult in a coalition because both conceptually and technically, the way command and staffs function varies from nation to nation, as well as among services within those nations and between commands within the services.[16]

One person's view of the differences in the command and control requirements of the U.S. Services because of the varying numbers of "subordinate entities"[17] (people, ships, planes) is captured in figure 3.[18] Armies track individuals, whereas navies track ships. Armies have more difficulty tracking subordinates (people) because of sheer numbers and the nature of land warfare. Many aspects of command and control are affected by whether the Service is dealing with air, land or sea forces. A similar chart could be developed for the participants in a coalition operation. The impact on command and control requirements would be affected by the coalition organization, the level of unity of command, and the characteristics of the militaries of the individual countries.

Because information flows horizontally and vertically throughout the command and control structure,[19] certain organizational points of interaction are necessary for effective

Figure 3. *Service organizational differences: relevance to command and control*



Source: Kenneth C. Allard, *Command, Control, and the Common Defense* (New Haven, Conn.: Yale University Press, 1990), Figure 6-3.

flow of information. "Information denial creates higher degrees uncertainty than necessary."[20] "It is even possible to define command and control as being 'whatever it takes' to ensure that commanders at the scene of action will take the actions their senior commander would want them to take under whatever circumstances they confront in a specific situation."[21] How can we ensure that all levels of a coalition understand the mission goals and that there is a sufficient flow of information? What do all levels need to know? What is the minimum sufficient interaction? For all military organizations, specialization is expanding because of the complexity of equipment and the corresponding amount of detailed knowledge required—and specialization increases the amount of information the commander must control. How can we structure information for ease of control? Can and will we delegate control of detailed information in a coalition operation? What is the impact of varying levels of technical capability between coalition partners?

As coalition forces become more integrated, command and control becomes more complex. How integrated do the allies have to be to be effective? Noncoalition operations use national organizations, such as national armed forces, to determine command and control requirements. Coalition operations may use a theater of operation, perhaps a country boundary, with intermingled national organizations to be accommodated within this set of command and control requirements. Studies about organizational "seams" and the issues that come up when working across them, may provide insight in this area.

"Commanders make...organizational decisions that establish a chain of command and flow of information."[22] This chain clearly starts with the commander, who is not necessarily predetermined to be an American or even currently known. A complex organization can have a negative effect on decision cycle time. This was true in Vietnam, where the United States had access to more modern communications than the enemy—which was often part of the problem.[23] What kind of organizational guidance can be prepared for use by U.S. commanders, either in charge or as part of a coalition team? What would constitute the "sound command organization" alluded to in the *Unified Action Armed Forces*? Is there an organizational structure that best copes with the needs of a coalition of either equal or unequal partners? Will it be U.S.-dominated? Will it be U.S.-supported? Can it cope with new, temporary, or inexperienced allies? One might chicken-and-egg this forever, insisting on knowing *what* needs to be organized before answering the question of *how* to organize.

For planners to be effective, they must know the game rules. At what level of the military hierarchy should planners be asked to determine the most effective organization, the functional efforts that must be unified, and the elements of command that must be unified? Should this be standardized, left to each theater CINC to determine independently, or should it be a combined effort by all CINCs, with allowances made for regional differences? Should any allies be consulted? Even between U.S. Services, there is a concern of setting "precedent," or establishing something in one operational plan that may be expected elsewhere at a later date.[24] This fear would probably be magnified among allies.

In the post-World War II period, the three Service—the Army, Navy, and Air Force—each claimed to have won the war in the Pacific and the interservice coalition of joint operations ended because it was no longer needed.[25] Likewise, the ad hoc coalition organization may be expected also to end as soon as the need that inspired it is gone and individual national and opposing interests resume prime importance. This is not a problem if the experience gained is used to form the basis for further organizational development of coalition requirements.

Command and Control Model

According to staff at the National Defense University's Command and Control Research Program, the most important thing not "done previously is to formulate a conception of command and control that has relevance and applicability across levels—the tactical level, the operational level, and the strategic level—across domains—multiservice, multinational, civil-military—and across contexts—looking not only at wartime but also at peacetime and crisis situations and the transition periods in between."[26] Current models of command philosophy include some based on other cultures and world views. An example is the German concept of *Auftragstaktik*, the essence of which is "the commander makes known his general intention to his subordinates and then provides them maximum latitude to achieve the objective without imposing too restrictive a degree of control."[27] Americans tend to have a high level of individual initiative, a useful trait in a potentially unstructured coalition environment. Whether a more structured command philosophy is appropriate for the United States, with our culture, which is less disciplined than Germany, Israel or Russia[28] is a matter of debate.

The same question can be posed about the development of a command and control process to work with any other country. What is an appropriate model? Within the United States, many models have been developed to study command and control: the Lawson Model (sense-process-compare-decide-act), Boyd's O-O-D-A Loop (observe-orient-decide-act),[29] the Mors Model (sense-assess-generate-select-plan-direct), the SHOR Model (sense-

hypothesize-options-response).[30] None is totally accepted throughout the community. How will nations that emphasize different models interface and function together? Is it necessary to have an agreed-upon model of U.S. and coalition command and control functions, or would focusing on the current operational procedures of coalition allies be adequate?

It is clear that "over the centuries, much has changed about war, but one thing has not changed: this cycle of decision making and execution, and the reality that that side whose commanders perform the cycle faster and with better result has a decisive tactical advantage."[31] How can this be best achieved in a multinational environment? What can the United States do to foster better understanding of command approaches and how they interact in conflict and synergistically? What can be done to spread the U.S. way of doing business? Is that the right thing to do? Can we learn from other nations' methods?

Certainty

> In general the more important the human element as opposed to the technical element in any given situation, and the more important the enemy's action in shaping that situation, the greater the uncertainty involved.[32]

> In terms of the mission of a fighting unit, this reliance on absolutes is basic. . . . command is a concept based on a continuing attempt to attain a condition of absolute certainty" the proof of which is being certain about the variables over which authority is held.[33]

> Uncertainty being the central fact that all command systems have to cope with, the role of uncertainty in determining the structure of command should be—and in most cases is—decisive.[34]

How much certainty can be achieved—at the start of an operation and as it progresses? Are some critical aspects of certainty required for a coalition operation? If so, could they be codified for a commander to use in an ad hoc situation when time may be limited?

How much certainty is necessary? Issues of certainty are common to command and control in all operations, including

unilateral efforts. In a coalition effort they have added significance because the differences in coalition forces and capabilities can exacerbate any existing problems. The human element is especially variable and may have greater impact in less technically developed forces.

Notes

1. Martin Van Creveld, *Command in War* (Cambridge, Mass.: Harvard University Press, 1985), 264.

2. For further background reading, Martin Van Creveld's *Command* is an excellent overall history of command, and *Command, Control, and the Common Defense*, by C. Kenneth Allard, is a comprehensive outline of the development of American military command. Additional information can be found in *Command and Control of Theater Forces: Adequacy*, by John H. Cushman (C^2 systems); *Command and Control: The Literature and Commentary*, by Frank M. Snyder; *Issues of Command and Control, and Command and Control for War and Peace*, both by Thomas P. Coakley. Additionally, *The Mask of Command*, by John Keegan, provides a more personal look at command, including insight into the coalition that Wellington commanded against Napoleon.

3. Joint Pub 1-02, *Department of Defense Dictionary of Military and Associated Terms*, s.v. command and control, 77.

4. Frank M. Snyder, *Command and Control: The Literature and Commentaries* (Washington, DC, National Defense University, September 1993), 19.

5. Interoperability: "1. The ability of systems, units or forces to provide services to and accept services from other systems, units or forces and to use the services so exchanged to operate effectively together. 2. The condition achieved among communications-electronics systems or items of communications-electronics equipment when information or services can be exchanged directly and satisfactorily between them and/or their users. The degree of interoperability should be defined when referring to specific cases."

Compatibility: "Capability of two or more components of equipment to exist or function in the same systems or environment without mutual interference."
(Joint Pub 1-02, *Department of Defense Dictionary of Military and Associated Terms*, pg 190 and 82, respectively.)

6. Ibid., xiii-xiv.

7. Ibid., 15.

8. Joint Pub 0-2, *Unified Action Armed Forces (UNAAF)* (Joint Chiefs of Staff, December 1986), 3-2.

9. Lt. Col. C. Kenneth Allard, *Command, Control, and The Common Defense* (New Haven, CT: Yale University Press, 1990), 95.

10. John H. Cushman, *Command and Control of Theater Forces: Adequacy* (Cambridge, MA: Program on Information Resources Policy, Harvard University, April 1983), 3-11.

11. Lt. Col. Dennis Clausen et al., *Joint Specialty Officers: Improving the Military During A Period of Reform*, ser. 88-03 of *National Security Program Discussion Paper Series*, (Cambridge, MA: John F. Kennedy School of Government, 1988), 1,3.

12. Allard, *Command, Control, and The Common Defense*, 95-96.

13. Van Creveld, *Command in War*, 101.

14. Ibid., 270.

15. Ibid., 236.

16. Roger Beaumont, *The Nerves of War: Emerging Issues in and References to Command and Control* (Washington, DC: AFCEA International Press, 1986), 2, 29.

17. Allard, *Command, Control, and The Common Defense*, 155.

18. Ibid., 156.

19. Richard S. Beal, "Decision Making, Crisis Management, Information and Technology," *Seminar on Command, Control, Communications and Intelligence* (Cambridge, MA: Program on Information Resources Policy, Harvard University, Spring 1984), 10.

20. Ibid., 14.

21. Snyder, *Command and Control*, 16.

22. Ibid., 13.

23. Van Creveld, *Command in War*, 251.

24. Cushman, *Command and Control of Theater Forces*, 5, 39-40.

25. Allard, *Command, Control, and The Common Defense*, 105.

26. Gregory D. Foster, "The National Defense University's Command and Control Program", *Seminar on Command, Control, Communications, and Intelligence* (Cambridge, MA: Program on Information Resources Policy, Harvard University, Spring 1987), 12.

27. Ibid., 13.

28. Ibid., 14-17.

29. Thomas P. Coakley, *Command and Control for War and Peace* (Washington, DC: National Defense University Press, 1992), 32-33, 186.

30. Foster, *Seminar on Command, Control, Communications and Intelligence*, 6.

31. Cushman, *Command and Control of Theater Forces*, 2-55.

32. Van Creveld, *Command in War*, 268.

33. James H. Carrington, *Command Control Compromise: Values and Objectives for the Military Manager* (Annapolis, MD: Naval Institute Press, 1973), 31.

34. Van Creveld, *Command in War*, 268.

4. External Influences

Command cannot be understood in isolation. The available data processing technology and the nature of the armaments in use; tactics and strategy; organizational structure and manpower systems; training, discipline, and what one might call the ethos of war, the political construction of states and the social makeup of armies—all these things and many more impinge on command in war and are in turn affected by it.

Van Creveld, *Command in War*[1]

Milieu

Coalition operations are complex and influenced by many factors. To analyze the key factors affecting command and control of a coalition operation, these influences are separated into four major categories. First are factors external to the coalition itself. These dynamics form the overall milieu within which the coalition operates and include the physical environment and situation, as well as political and policy, socio-economic, and technological factors. Second, bridging the full range of considerations affecting a coalition operation is the subject of "people": those who affect and contribute to the external influences and who make the operation happen. Third are internal dynamics of the actual operation which include planning and execution. The fourth factor is level of interoperability. For this discussion, these dynamics are treated separately, with the recognition that they all interact and affect one another, either meshing or clashing.

This chapter discusses the overall milieu, and succeeding chapters discuss people, the operation itself, and interoperability, respectively. In studying coalition operations, it is important to understand all the dynamics involved because, as is true with many other situations, lack of knowledge about the various factors "tends to convert genuine political and military problems into bogus technical ones."[2]

Knowledge of Environment

Any coalition has its own personality with its own particular combination of environmental traits that affect command and control requirements. Many elements of the environment and situation are uncontrollable but may be better dealt with if planners are knowledgeable about other aspects. To enhance this knowledge, it may be useful to develop a database with information about different countries. Minimum sufficiency could address their infrastructure, technical capabilities, and population characteristics. The military has access to Department of Defense (DOD) and some civilian intelligence systems, but has the military capitalized on all available sources of information, such as academic centers, evaluative studies conducted on different countries or regions, and industrial information from contractors? Can this capability be organized and at least developed into a menu of sources? Is indepth information available about all participants in the region, including their language, cultural philosophy, geography, assets (such as military equipment), infrastructure, and resources (such as energy supplies, food, and medical supplies)?

The late Dr. Richard Beal, former special assistant to former President Bush for National Security Affairs and senior director for Crisis Management Systems and Planning, commented on the lack of readily available knowledge about Chad when the Libyans invaded the northern part of that country in the early 1980s:[3]

> It took us about two days to find anyone truly competent to know where the oases were and where the roads ran in the middle of Chad around the 15th parallel. You can get out the list and count up how many Americans you know who are competent to tell you where the oases are in Chad. And that was no trivial issue. The only truly competent person we had was an American military officer who had spent time with the French in Africa. And as it turned out, the information we received geographically and demographically was the number one thing to know in the Chad case.[4]

Does the military have sufficient numbers of people trained in the art of political military assessment and information development? And what *is* sufficient? Are they assigned and used in the most effective manner? Does each Service have the capability to track military personnel with experience and knowledge of foreign countries in case they are needed for a specific event? Is there a sufficient pipeline of trainees in a wide variety of foreign languages? The Services approach management of their foreign area specialists in different ways, reflecting the varying Service levels of use, policy requirements and the relative level of importance placed on this function. The amount of attention the Services place on training these personnel varies correspondingly.

Policy

> I would suggest that we see before us today [that] a complete dichotomy between peace and war no longer is meaningful. We are engaged in forms of international interaction and conflict today that suggest to me that we really need to rethink what war is in the context of command and control. This affects how we view, at the grand level, the interrelationship between civil and military authorities and at a more focused level, how commanders exercise command over forces.[5]

Those who plan coalition operations can not escape the impact and role of political actions. A successful coalition operation requires presidential participation and leadership, as well as the time to develop the coalition. The type and complexity of the operation affect the time required for this development. In coalition operations, the relationship between diplomatic relations and military operations is more direct than in unilateral operations. Under the stress of the crisis (and as was the case in *Desert Shield* and *Desert Storm*), all levels must work at the coalition every day. Active involvement by ambassadors, the Secretaries of State and Defense, and the President is essential, or the coalition will fall apart.

Diplomacy and military operations are often interdependent. According to George P. Schultz, former U.S. Secretary of State, "The hard reality is that diplomacy not backed by military strength is ineffectual."[6] However, the military also needs other powerful institutions to obtain overflight rights, resolve basing

issues, and so forth. The nature of the coalition operation depends on political ties and agreements, which are then reflected in the organization and goals of the operation. If the military is not prepared to operate effectively and flexibly in a coalition, with appropriately thought-out doctrine, there may be political ramifications, such as inability to act when desired. Conversely, unresolved diplomatic issues may affect the military coalition operation throughout. As in *Desert Shield,* although internal U.S. operations were ongoing, efforts to jointly plan with the coalition were delayed until the politically propitious time.[7] In other situations, operational activities can be affected.

U.S. Politics

Analysis of U.S. efforts to influence its allies would seem to indicate that from an American perspective, "the interactions which mark alliance relations seem to be only imperfectly understood."[8] While "both allies and adversaries are important to the analysis of policy questions," it has been found that there is a tendency to discount smaller nations and focus on the apparent leader nations: "Policy analysis addressing adversarial relationships almost invariably limits itself to superpower behavior—the influence of alliance partners is seldom mentioned let alone addressed."[9] In a world of coalitions, especially those that are ad hoc, even a small nation may be a critical player because of its location, knowledge, ability to mediate, and influence. Allies with expertise in the geographical area, such as the French in Chad, may be of particular benefit. Those planning for a coalition operation must know the level of diplomacy required and whether the United Nations or other regional entities, such as the Organization of American States (OAS), Association of South Eastern Asian Nations (ASEAN), etc., will have a role. It is pertinent to know about any party that is interested in the conflict and why.

Because "the nation's political values and beliefs exercise an important influence in determining the overall shape and characteristics of its military command structure", consequently, "political direction may involve some spillover into what otherwise might be purely military functions."[10] A good example was the conflict in Vietnam, which was not purely a military conflict but one affected by politics at every stage.[11] American

citizens and internal national politics continue to have a strong impact on military operations. Internal political views of a coalition operation may vary widely, depending on participants, cause, location, and length of operations. Within the U.S. government, opinions and reactions from various agencies and policymakers can differ. Many parts of the government must reach consensus for effective action to take place. Because of their styles of government, some potential allies and adversaries do not deal with such issues in the same way.

There are those who would use cuts in the military, particularly in forward projection of forces, to extract the United States from entangling foreign alliances. Such cuts would have a significant impact on the number of resources readily available for operations. Internal political pressure on the government to withdraw forces deployed overseas is increasing, and more time and attention is required of U.S. political leadership to manage this domestic opposition. Such internal pressure and increasing domestic unwillingness to accept new responsibilities on the global level may affect defense capabilities and options.[12] If available resources are primarily stateside, then planning options are limited. It may no longer be possible to have years of shared experience with other nations to build on in an ad hoc coalition. Those who anticipate regional conflicts will have to be more creative in planning. The roles of possible coalition members may increase, therefore, in importance and value.

A major policy point under debate concerns the role of the United States in future conflicts, possibly as leader, supporter, or even nonparticipant. This study assumes that with the breakup of the former U.S.S.R., the United States has emerged as the world's leading military power and the one most capable of major global military action. Opinions differ about whether the United States will increase its support role (economic or military equipment support) if its warfighting role decreases. This could occur either as a means of retaining world influence or in response to domestic pressure. Likewise, there are differing views concerning whether the United States would be likely to provide only a small part of a coalition force, although it already regularly provides limited support to a variety of operations. Some examples include transportation via the use of C-130s and helicopters to support indigenous forces; the provision of specialized weapons,

such as Stingers, to Afghanistan; assistance with a command and control network, in organization, communications, and computer-aided planning; and the provision of other special equipment.

Since "an alliance arrangement is inefficient,"[13] it is inherently harder to establish and operate a coalition effectively. Despite this lack of efficiency, which is antithetical to military planners, there are reasons to advocate a coalition operation. Many of these reasons are political or economic but many are also military. A coalition member may have something to offer that the United States lacks—for example, an indepth knowledge of the area and sources of human intelligence (HUMINT) not available to U.S. forces. Additionally, the United States may use coalition planning as a deterrence, or may provide specific support to a coalition, such as a command and control network or intelligence, as a means of (attempted) control to allow the United States to follow its own agenda. Whatever the purpose, because of our democratic principles, the U.S. public and Congress must both be convinced of the benefits and necessity of coalition operations. Military policymakers can help this along by active presentation, planning, and guidance.

Regional Security

One of the prime U.S. goals stated in the *Defense Planning Guidance for Fiscal Years 1994-1999*, according to media reports of the purportedly leaked document, is to "strengthen and extend the systems of defense arrangements that bind democratic and like-minded nations together."[14] A thought from a Rand Corporation study focused on Europe might give pause to those enthusiastic about establishing new regional security alliances: "Despite some 40 years' effort, our `entangling alliances' often seem to pose an even greater puzzle now than in the early days of our commitment to help defend other nations and their freedom. While the fact that the North Atlantic Alliance has existed over such a span argues that there is something special about the alliance—and its antithesis, the Warsaw Pact—reading the history of U.S. multi-national security agreements does not always leave one with the impression that such success is preordained. We might even suspect it is an aberration."[15] If this is true—and it may well have been true owing to the unique nature of the Cold War—it increases the need to look beyond

established alliances to the possible use of ad hoc forces to resolve regional conflict.

The location of and ability to plan or influence future coalition operations are affected and complicated by trends in the world security environment. The relative hierarchy of national powers may change, as may also the concomitant influence of those powers on decisions and their ability to participate in future coalitions. Economic policies may wield sufficient power to affect diplomatic or military policy, capabilities, and action.[16] As newly industrialized nations develop economically, they are also able to improve their military strength.[17] Changes in the balance of regional national military power allow new options in resolving disputes and regional hierarchical differences, and in achieving political objectives.[18] To paraphrase, "Where there's a way, there's a will." As the number of countries with a way increases, the future becomes more complex, and the number of potential allies and adversaries multiplies.

Although the following was said about an established alliance (NATO), these comments pertain also to ad hoc coalitions. Implementation of policies is affected by the "influence of constituencies within the member nations" and, "since each of the members of the alliance must mobilize the support of their own internal constituencies and interests, we should be very wary of any attempts to convince the rest of NATO [read: "our allies"] to undertake an effort based largely on what are viewed as U.S. perceptions developed by U.S. analysts to be implemented through U.S.-sponsored initiatives. This requires that in the end, initiatives aimed at handling the long-term competition [read: "situation"] must be developed within the alliance [read: "coalition"]."[19] While it is unlikely that another alliance similar to the Cold War-era NATO will form, the development of regional solutions and interrelationships continues to be important and, along with an evolving U.S. role, will affect the effectiveness and deterrent ability of future ad hoc coalition operations.

A possible complication in setting up new operational regional security coalitions is that the "directed telescope of Van Creveld"[20] may be difficult to employ across lines of national pride, security, and sovereignty. In addition to sovereignty issues, the way decisions are made within each participating nation and

the internal domestic restraints affecting the participants affect the coalition decision making process. Although an autocratic government appears freer to act as it wishes, many influences, such as internal factions, complex external agreements and bargains, national weaknesses and biases, and increasing influence of information technology can constrain these government actions.

Whatever the U.S. role is, a mutual effort is necessary to decide the goals of regional security arrangements. Deterrence? Peacekeeping? And if so, of what? External aggression? Internal conflict? Terrorism? Narcotics? Where? How? Borrowing again from the RAND Corporation study concerning NATO, "The U.S., to a larger degree than any of the other NATO members, interacts with all of the alliance members on multiple issues." "Because these agreements are generally drawn up along common lines, they can set standards, give birth to ways of conducting business, and introduce new concepts." "Possibly the most apt example of such agreements are the series of understandings which define the use of allied airfields by United States reinforcing airpower during time of war. These agreements are negotiated on a member-to-member basis and thus respect individual countries' concerns and sensitivities. Forming a hierarchical structure ranging from Memoranda of Understanding, negotiated at the national level and providing an umbrella agreement defined in broad terms, to Joint Support Plans negotiated at the level of the military units which will operate together, these agreements provide a common understanding within the alliance of the mechanics involved in providing, maintaining and operating from shared military facilities."[21] As the goals for regional security are more clearly defined, the use of multiple bilateral agreements will continue to be a key to coalition forming as they provide a framework for an ad hoc operation, should one be required.

United Nations and Peacekeeping Efforts

Simultaneous with other political changes, the role of the United Nations is being reviewed by its member nations. During the Gulf War, the United Nations was more active than in previous conflicts, perhaps signaling a turning point toward increased international cooperation on issues of global impact. It may take at least until the mid-1990s to develop a consensus about the

U.N.'s role in future crises. Exactly how much to support an enhanced United Nations role is increasingly an issue within the United States. Some countries view these portending changes in U.N. activity as positive and significant. For example, after months of debate, Japan passed legislation allowing use of its troops outside Japan in support of U.N. peacekeeping operations. This is a milestone in Japanese history. Other countries, however, view these same changes with alarm.[22]

Both within and external to the United States, some believe peacekeeping is better under the auspices of the U.N. or another organization such as the Organization of American States (OAS). Although, this may not yet be possible because the United States can react faster alone than those organizations can, unilateral action may not be so effective. The United States might consider maintaining a standing force structure that includes the mission to support U.N.-established cooperative security arrangements. This peacekeeping concept might involve the Army Corps of Engineers in public service in the Third World. This kind of involvement keeps the force structure trained and ready and at the same time provides presence and enhances U.S. security and influence. It could possibly also be done on a barter basis in countries unable to pay for services received. Evolution of the U.N. structure and capabilities as an effective world influence may inspire questions such as: Who will allocate resources? Who will control equipment acquisition, standardized procedures, and interface issues? Who will be in charge? Would a U.S. commander be subordinate to a U.N. commander who was not part of the U.S. military? These questions are similar to those worked out or being negotiated within NATO. With the United Nations there are many more players and more difficult negotiations. As the United States increases its ability to conduct coalition operations, some of it may impact U.N. operations, much as the United States influenced the development of NATO.

While war is defined as "the presence of direct international violence,"[23] its causes are generally nonmilitary and can spring from positive intent (at least from the doer's perspective). American presence may be used to quell uprisings and thereby support friendly, democratic governments, although this may lead to charges from domestic and international sources of mercenary intentions or of attempting to be the world's policeman.

American leadership might wish to incorporate military force into its assistance to developing nations, thus supporting local democratic efforts and aiding peacekeeping efforts throughout the world. Whether used or not, the ability to do so is enhanced by efforts to improve both bilateral arrangements and the conduct of a coalition type operation.

Long-Term Strategic Planning

Clausewitz's said, "war is not merely an act of policy, but a true political instrument,"[24] recognizing the relationship of politics and military operations. Any long-term strategic plan for command and control architecture needs top-down emphasis from civilian and military leadership to succeed.[25] From a military perspective, the goal of any operation must be as clearly stated as possible to be most effective. This applies equally to coalition operations. Yet ambiguity may be an effective political weapon, and, if necessary, the cost to military effectiveness must be tolerated.

During the Cold War, the United States considered itself "engaged in a long-term, non-belligerent competition." Only defensive action was acceptable, and reliance was on the "threatened use of military capability to improve the alliance bargaining position." As in any diplomatic maneuver, not all countries perceived these actions in the same light—the West called it the Cold War; the Soviets called it peaceful coexistence—but such posturing and bargaining were necessary and continuing activities.[26] Likewise, current efforts to improve regional security bargaining positions, perhaps through coalition operations, may not be viewed the same by all countries. Understanding other national reactions can contribute to determining long term policy about potential coalitions.

Socioeconomics

Strategic planners must consider today's trends and their impact on future crises. Socio-economics may seem far from the operational military community, but changes in economic and demographic trends can gradually alter relative military power of different nations by affecting military spending and the resulting size and capabilities of armed forces.[27] They can also affect the motivation of both enemy and ally, help or hinder regional

stability, generate movement of displaced people, and raise moral questions. A quick look at history shows that economic, social, and cultural factors had a pervasive impact on military command during the Vietnam conflict.[28]

Economics and Resources

Economic trends affect the roles and abilities of the world's major powers. "Wealthier and more technologically advanced nations can affect the security environment by exporting weapons or goods useful in the production or enhancement of weapons; by foreign aid or investment decisions; and simply by their inherent potential for developing greater military power in the future."[29] A 1988 study conducted by the U.S. Commission on Integrated Long-Term Strategy anticipated that a growing number of regional powers (South Korea, Taiwan, Turkey, India, Brazil, and Egypt) will increase their military capital stocks and acquire the ability to produce and export substantially advanced weapons.[30] Even this partial list of regional powers takes in a large part of the Third World and suggests where future conflict may occur.

In forming regional agreements, efforts to develop economic interdependence can be perceived as "restricting options available to a nation's policy makers. . . . handling this situation effectively involves accepting the integration and consequential loss of national freedom and engaging in the joint determination of economic policies. That is, such efforts, if they are to be effective, will entail foregoing some measure of our sovereignty."[31] The United States is already economically involved in different regions. In some instances, the relationship is rocky. Perhaps developing regional security agreements will foster a more cooperative interdependence. In any case, socio-economic factors will influence national policy affecting military operations.

According to the Rand Corporation study, "much of what we [the writers] have outlined in our three strategies for long-term competition is beyond the self-limited purview of the alliance. Such aspects as economic growth, trade within and without the alliance and technology transfer are the policy domain of other organizations and associations which might be described as collateral to NATO, such as the Organization of Economic Cooperation and Development (OECD), the European Economic

Community (EEC), the International Monetary Fund (IMF), the General Agreement on Trade and Tariffs (GATT) or COCOM, the West's Coordinating Committee on strategic exports."[32] These organizations will have positions of power and influence in international forums. Although originally referring to NATO, this quotation is pertinent to coalitions. Policies intended to increase resources available to an alliance and to stimulate growth will be affected by internal economic policy, policy that affects intra-alliance relations, and policy that affects trade with others.[33] Most of these involve long-term policy direction and can not be quickly affected. The manner in which they are accomplished and the light in which other countries view the position and intentions of the United States can impact planning for a coalition operation and the reception of our military forces. In any discussion of regional arrangements and either positions in or preparation for a coalition operation, questions are sure to be raised about burden sharing, industrial funding, and what each country spends and for what.

Societal Implications

A government that deals with large, unemployed, hungry populations may have an army that, by circumstance, is low tech—possibly militia style. This affects the type of weapons the coalition needs; precision weapons may not be very effective against masses of people. Military spending and military capital stocks, however, give only a partial picture of relative military power, because morale, command, tactics, and quality of training must be factored in.[34] Demographic trends, the role of women and medical issues have major societal implications that can also impact long range planning for a coalition operation.

Demographic trends. Changes in disposable personal income, unemployment rates, numbers of those eligible for military service, ethnic mix of populations, and budget pressures caused by increased social expenses (such as health care costs and a rising population of the elderly) can influence regional tension and stability.[35] These issues also affect the ability of a country to project military power, deflect aggression, and participate in a military operation such as a coalition effort. The United States is not isolated from these trends. Data from 1991 concerning Mexico's estimated unemployment rate of 15 percent to 18

percent and an estimated inflation rate of 30 percent[36] show that major changes in demographic trends are already occurring close to U.S. borders. These factors, coupled with rising poverty in Mexico, lead to increased illegal emigration to the United States, political unrest, and the possible need for more assistance from the United States to Mexico.[37] Additionally, there is considerable disagreement and tension within the United States over the North American Free Trade Agreement (NAFTA), which is proposed to benefit both the United States and its neighbors. Similar issues and corresponding tensions can be found in every region of the world.

Role of women. Along with changing views of a post-Cold War world, another recent demographic change concerns views about the role of women in society. This will affect the status of women in military service, the length of time inductees serve, and their corresponding level of training.[38] As these trends cause changes in different countries, previous expectations and agreements may be altered. National differences of viewpoint about the role of women may impact planning and allied relationships for specific coalition situations.

Medicine. As part of routine deployment, the U.S. military inoculates its members against known contagious diseases or infections. In the future this may not be so simple. The rising incidence of AIDS worldwide concerns those watching the well being of deployed forces.[39] There may be an increasing reluctance to work with specific countries or to deploy U.S. forces (or to receive them on the part of the other country), even in humanitarian operations. Countries hard hit by AIDS may suffer political turmoil and economic reversals as well as loss of leadership potential. "If the current pattern of AIDS in Central Africa is replicated in Latin America, the urban, educated elites (including military elites) will be disproportionately affected by AIDS, destroying major portions of the human infrastructure in those countries."[40] This problem may consequently affect people in government and the military at levels where the United States works to foster good diplomatic and military ties.

Moral Issues

As any compilation of world population statistics and trends is reviewed, a number of moral implications become apparent. As

the world's population grows, the living standard in many other countries remains low compared to the relatively high standard of living in America. Questions concerning the military's utility may be asked by those in public office who perceive the military has contributed to maintaining an disproportionate distribution of resources to U.S. advantage. Perhaps they would rather use internal U.S. investment in education and economic infrastructure as a means to maintain this disparity or perhaps they do not think the disparity should exist. Perhaps they would simply rather spend defense money on domestic issues. More Third World immigrants are immigrating to the United States, and they may apply pressure on U.S. political leaders not to use lethal weapons. Although even European countries and Japan were attacked in the past, there may be greater pressure to find alternate ways to resolve problems. Or there may be pressure for greater involvement in Third World problems. Such alternative views may also reflect the positions of Third World allies and, consequently, may impact their level of cooperation or bargaining demands. Efforts that emphasize the peaceful end of the spectrum of possible coalition operations might help allies or potential allies to build better international relationships. For the U.S. military, this would also provide opportunities for training and an increased familiarization with those countries.

Technology

Advances in technology affect the conduct of operations and planning, coalition or otherwise. Of particular interest are weapons and military hardware development and telecommunications capabilities, as well as technology transfer. As operational capability and flexibility expand, the challenge to build command and control systems to support the increased capability becomes more difficult. General Alfred M. Gray, former Commandant of the Marine Corps stated that various functions, such as operational control, fire support, air operations, combat service support, maritime operations, and intelligence provide critical input to the tactical plot and must be interoperable.[41] The importance of developing and building to standard by all members of the joint and combined community has already been recognized.[42] New regional alliances and ad

hoc coalitions offer added challenges to interoperability (discussed further in chapter 7).

Weapons-Related Technology

Proliferation. During the 1980s, concern about proliferation issues expanded from a narrow focus on nuclear weapons to include weapons delivery systems, new types of explosives, chemical and biological weapons, space, communications technologies, and advanced data-processing capabilities.[43] The equipment "now being obtained indicates an emphasis on command and control capabilities and their use to increase the effectiveness of military forces."[44] Although a growing but not yet widespread capability for producing an adequate command and control system exists in the Third World, those systems' component parts are primarily imported from industrialized countries.[45]

Economic development has allowed some countries to become major weapons producers and sellers, and other to become major procurers. The resulting market has quickened the spread of advanced weapons,[46] possibly contributing to longer regional conflicts that will be supported by a ready supply of weapons, a situation with a significant impact on U.S. interests for several reasons. Expansion of the conflict may disrupt trade or threaten allies or friends in the region.[47] As other nations deploy new technology, this may complicate interoperability and compatibility of coalition systems or may affect the ability to geographically isolate a conflict. New technology also affects the overall tempo of operations, as well as rates of attrition and associated battle damage.[48] Access to new technology by possible enemy states could affect development of U.S. operational doctrine about use of military power and thereby also impact coalition planning. To ensure that the United States is capable of intervening in regional conflicts if desired, the ability to vary the application of doctrine between either coalition or unilateral action may be necessary.[49]

As developing countries improve their capabilities, they can participate more significantly in the international security arena, including "(1) granting or blocking access to facilities, bases, and airspace; (2) providing weapons to other nations from their own inventories or indigenous industries; (3) intervening directly with military forces on their own or as a surrogate; and (4) providing

economic assistance to improve the defense capabilities of other developing countries."[50] As the United States assesses potential allies and adversaries for a possible coalition, the changing balance of power needs to be monitored. Some countries may be less easily influenced, and more compromise and negotiation may be necessary.

Commonality. Different weapons systems from different sources complicate logistics and resupply efforts within a coalition. Conversely, both sides of the conflict using the same equipment also can complicate operations. During Desert Storm both sides flew the same type Mirage aircraft. Use of the same equipment makes it difficult to distinguish friend from foe.

Although sale of defense weaponry has a long history, the potential of similar problems will increase as the Cold War allies sell excess equipment to developing countries. American military equipment has generally been more appealing to buyers because of its overall quality and because some other suppliers do not provide an adequate level of follow-on support. Nonetheless, many countries want an indigenous capability, or they may not want to rely on one source that may not always be there or that may leave them subject to coercion.[51] As such countries develop economically, they either purchase equipment from non-U.S. sources or start to develop their own weapons and hardware systems. (The latter course can also negatively affect the U.S. defense industry, but that subject is outside the scope of this study.) The end result is increased complications due both to the variety of equipment that may come to a coalition and to the potential of finding the same type equipment used by some coalition members in the opposition camp.

U.S. technological superiority. During the 1970s and 1980s, the developing countries "benefitted" most by the spread of military technology. As this spread continues with more modern technology, a technological edge must be maintained by the United States, both generally and regionally, in the event intervention in a specific region is necessary. Greater reliance in the United States on components manufactured abroad can threaten effective implementation of war plans or may cause the United States to develop plans that seek to ensure continued access.[52]

Previous U.S. policy encouraged and aided improvements in the defense capability of (selected) Third World countries so that those countries could take on more responsibility for maintaining regional security.[53] This seems an appropriate base on which to build, but with increased capabilities, many of these countries are no longer willing to be influenced by U.S. policy. The expansion of indigenous capability for command and control systems and other high-technology equipment further complicates coalition operations and planning, as well as U.S. efforts to stay ahead.

Breakthroughs. Equipment such as the Global Positioning System (GPS) has both tremendous military application as well as a major positive impact on the commercial world. During Desert Storm, the system was so effective and desirable that it proliferated from 200 to 5,000 units in the field.[54] In the future, will the United States be able keep the most precise level of GPS service for selective use under U.S. control after its effectiveness has been so well proved? What happens now that GPS is generally available to others, including unfriendlies? Another risk is that a country once friendly may change leadership. This occurred in Iran, where 80 F-14 fighters and several hundred Phoenix missiles were then potentially available for exploitation or further sale.[55] Is a special policy needed for coalitions? Who gets the equipment? How do we get it back? Will we get it back? What do we do when we don't? Ultimately, these questions affect all capabilities, particularly after they have been used in action and proven to be effective.

Telecommunications and Information

Telecommunications and computers are the underpinnings of information management. Many influences affect the ability of an alliance or a nation to control its information resources efficiently: multiple languages or unity of language; equipment—how much? what type? is it interoperable? are people necessary and available for liaison? Other questions are: What is the impact of commercial capabilities, such as the telephone (fixed and cellular), facsimile (fax), satellites, E-mail, and so forth? Will the local population on either side of the conflict use these means to supply one side or the other with intelligence, moral support, and coordination? What is the role of the media?

Telecommunications. A recent example of the use and manipulation of telecommunications, computers, and media was the attempted coup in August 1991 in the former Soviet Union. A series of quotations from an article reporting the use of information technology makes this use and manipulation clear: "As in China during the 1989 uprising, computer networks were instrumental in maintaining the flow of information and bulletins throughout the Soviet Union during the coup. . . . The group that tried to seize power were either unaware or couldn't keep up with the instantaneous transmissions. . . . Soviets also used the channels to transmit and read banned news reports. . . . The connection was made possible by the thousands of personal computers introduced in the Soviet Union in recent years. . . . The Soviet network, GlasNet , . . . stayed on line throughout the crisis. . . . could still send electronic mail out of the country. . . . eyewitness accounts were filed by protesters."[56]

GlasNet was installed by the International Foundation (Moscow, Washington, Munich, Sofia) and the Institute for Global Communications (San Francisco) for the purpose of "easy and inexpensive information exchange among scientists, educators, cultural groups, journalists, environmentalists, computer enthusiasts, and others . . . it will enable Soviet groups to correspond electronically with counterparts in the Americas, Europe, and Asia."[57] This net was officially operational only since May 1991. At the same time attempts were made to shut down the regular news media in August 1991, the computer links were active with traffic. Newspapers, television, and radio were restricted although external radio sources continued to provide information. Gorbachev said later in an interview that "Everything was turned off, but we found some old receivers in the service quarters and were able to set up antennas—the lads were able to figure out how to do that. We were able to catch some broadcasts and find out what was happening."[58] He went on to mention BBC (with the clearest signal), Radio Liberty, and Voice of America. The day of the attempted coup, "where Soviet television carried only a terse announcement and the city was rife with rumor, the telephone seemed to carry the day. One student said he had been called by a local reporter at *Moscow News*, another had heard again by phone from his mother in the Central Asian Republic three hours away, and a third had gotten a call

from a friend in Nashville, Tennessee."[59] The United States considers this example a "pro" use of information technology. In a different situation, its use might just as easily be adversarial. For example, information technology could be used by locals to impede an operation, provide counterintelligence, or organize underground counterattacks. Either use can substantially complicate a coalition operation in a country where the capabilities exist and the populace is predisposed to use them.

These vignettes illustrate new vulnerabilities for both sides in a conflict. They also include opportunities to exploit new capabilities for intelligence operations, propaganda purposes, and interdiction. "Jie Liang [a Chinese student—referring to Tiananmen Square] said that computer networks were a vital link in organizing the rallies and subsequent protests." Based on his experience, during the Soviet rebellion he suggested that "Americans and others interested in helping the popular revolt should use computer networks, fax machines, and telephones to pour the truth into the Soviet Union."[60] Without overcharacterizing, the operatives of information exchange systems like GlasNet tend to be somewhat independent, devoted to their intellectual freedom, and unwilling to accept arbitrary rules. Planners must be aware that technology and business encourage international networking. While international networking could be a potential liability to the United States, it also effectively draws other countries into a web of interconnectivity and access. Familiarity with worldwide capabilities might prove valuable for both encouraging or countering civilian underground resistance groups.

Information. Planners can consider using information as leverage. The developed world has many information-intensive operations. As the Third World develops, it too becomes more susceptible to the impact of new technologies on information and power systems. It is the information that is valuable, not the network. The value of information is readily seen in an example from the Cold War, where information provided a stabilizing influence. Because the United States and NATO had sufficient information to interpret Soviet actions in certain Cold War scenarios, they could wait out what might have seemed a risky situation, such as an unannounced troop movement or a military

exercise. Had they needed to respond conservatively because of a lack of information, they might have overreacted.

Information affects governments and peoples. Ayatollah Khomeini capitalized on the Shah's initiative to install telephones in Iran by fomenting unrest via telephone calls into Iran. He was able to organize disgruntled people to band together and overthrow the Shah.[61] Such use of the telephone is feared as a potential threat in China. "It is the media and related information which strike at the greatest sensitivities of nations. . . . all embody a cultural content which can in no way be politically inert." [62]

Of particular impact is the advent of VCRs. Direct visual images in television news act as the people's "directed telescope."[63] As reported on CNN (9 June 1992), the sale of video tapes made from foreign news broadcasts of Thailand was brisk, albeit clandestine. The tapes were brought back into Bangkok where all coverage of the government's response to the uprising was banned. Tapes were carried to remote villages where people could see for themselves what actually happened.

It was reported in a study on the impact of VCRs on global politics that

> VCRs and video cassettes represent the fulfillment of some of the world's wildest fantasies. They symbolize the usurpation of control by private individuals over a mass source of information, a control that many governments consider their domain. VCRs and videocassettes offer individuals in lesser developed countries some control over a new technology. . . . A most important global feature is that, although VCRs and cassettes are often unwanted by governments, no government, including that of the USSR, has yet been able to put a stop to them.

This reference provides many examples of the political use of both audiocassettes and VCRs, but one particular story has an interesting twist: "The most systematic and successful use of audiocassettes for political purposes has been that of Ayatollah Khomeini, for whom they were an integral and essential part of a successful revolution." Yet once in power, "The ineffectiveness of Ayatollah Khomeini's ban on VCRs and cassettes can be seen in the following quotations: 'thousands have been smuggled in by wealthy Iranians. . . . Everybody seems to have a video-recorder, and copies of American video cassettes are easily available.'" Of

what use might this worldwide availability be to coalition planners?[64]

Availability. Timely command and control depends on reliable communications. Desert Storm used a tremendous amount of satellite and radio communications without much interference. Other countries observed the tremendous advantage this provided the coalition allies, greatly aiding conduct of coalition operations. Yet, plans for future operations should not be based on more bandwidth than can be protected. "Any sensible enemy will focus his most urgent efforts on countermeasures meant to neutralize whatever opposing device seems most dangerous at the time."[65] Like unilateral training, coalition training could include exercises that make use of less functionality than is expected to be available. If possible other countries could be included, as well as using communications gear that may be used in an actual operation. To adequately plan training, as well as operations, the United States needs to know what other countries are buying, what their infrastructure is, and how their equipment is used. The degree of sophistication of an opponent's system and its overall infrastructure will also affect operational decisions. For example, whether the telephone system is a hierarchical telephone switch or heavily cellular mobile, affects the ability to interdict.

General Alfred M. Gray, former Commandant of the U.S. Marine Corps, indicated that a key question was: What systems are really needed to ensure that critical command and control information is available?[66] If the United States made inexpensive equipment for interoperable command and control systems available, would allies purchase these in lieu of building their own? This could both enhance our relationships with these countries and improve operational capabilities of coalitions by proliferating compatible or interoperable command and control systems. If today's ally became tomorrow's enemy, our knowledge of their system capabilities and weaknesses could be useful (however, this may also work in reverse).

A tremendous explosion of capabilities is expected that will maximize the use of computers in the coming decades worldwide. The late Brigadier General Richard Simpkin observed a 30-to-50-year cycle in technological innovation and postulated that "full acceptance and integration of computers will have to

wait until the computer-literate school children of today become the power generation of the day after tomorrow."[67] However, it is clear from what is happening in the former Republics and East Bloc countries that tremendous gulps of technology are being swallowed and used immediately. This avoids the early learning curve of U.S. industry. There is no reason to think that this will not happen elsewhere.

Threat. Worry about matters like malicious code is valid, particularly with the proliferation of personal computers and of individuals hooking into systems without approval. "In the late 1980's the computer world has awakened to a new threat to its health—an infestation of various maladies which collectively, and sometimes erroneously, have been called 'computer viruses'."[68] On November 2, 1988, one version of a virus was successfully injected into the ARPANET, moving from there into MILNET (an unclassified network of the Department of Defense). This ultimately affected major scientific and study computer centers around the country and caused 48 hours of congestion and disruption to normal work.[69] "In just 6 months, beginning in September of 1987, about 100,000 computer systems sustained some form of damage from computer viruses. Microcomputers, mainframes, engineering workstations, and worldwide computer networks have all been affected."[70] "Threats to information resources fall into three categories: chance events, non-hostile human agents, and hostile human agents."[71] Chance events just occur. Nonhostile agents can accidently or unintentionally cause errors through negligence or poor training. Hostile agents deliberately target systems for a variety of reasons, including possibly political terrorism.[72] While access to military networks is restricted to authorized users, what happens in a coalition situation where coalition allies may have access? Would special controls be needed? How would a potentially hostile agent among the coalition allies be detected? How can effective command and control operate, yet still control and protect itself against a virus? How would system managers verify a virus and do battle damage assessment? Future conflicts may involve an adversary who has or acquires the ability to intrude into U.S. computer systems. They may also include individuals from either side who decide to take personal action.

As strategists look for military actions in the C^3I area that do not adversely affect the United States, they must also consider societal implications. As with nuclear weapons, the question of first use deserves some thought; if it is okay for the United States or its allies to use a weapon, it is okay also for the adversary to use them. During *Desert Shield* and *Desert Storm*, *U.S. News and World Report* carried a story about using a virus to attack Iraq's computers.[73] This is hard to accomplish in a closed society, but would be easier in many other more open countries. If technology such as this would be okay for the U.S. side of the coalition to use, it would be hard to object if used by the opposition. Additionally, coalition members may have different views about what actions are appropriate in the area of telecommunications and information transfer, as well as different capabilities in accomplishing agreed-upon goals.

Notes

1. Van Creveld, *Command in War.*
2. Ibid., 253.
3. Thomas P. Coakley, *C^3I: Issues of Command and Control* (Washington, DC: National Defense University Press), 39.
4. Beal, *Seminar on C^3I*, 18.
5. Foster, *Seminar on C^3I*, 11.
6. Bruce W. Don, *Allies and Adversaries: Policy Insights Into Strategic Defense Relationships*, Report # P-7242-RGS, (Santa Monica, CA: Rand Corporation, 1986), 238.
7. Maj. Gen. Schwartz, *Seminar on C3I.*
8. Don, *Allies and Adversaries*, 2.
9. Ibid., 4-5.
10. Allard, *Command, Control, and The Common Defense*, 10, 127.
11. Van Creveld, *Command in War*, 223.
12. Commission on Integrated Long-Term Strategy, *Sources of Change in the Future Security Environment*, submitted by Future Security Environment Working Group (Washington, DC: Department of Defense, 1988), 17.
13. Don, *Allies and Adversaries*, 6.
14. "Pentagon redefines its aims," *Boston Globe*, 24 May 1992; "Pentagon reshapes its strategy," *Financial Times*, 26 April 1992.
15. Don, *Allies and Adversaries*, 1.

16. Commission on Integrated Long-Term Strategy, *Sources of Change in the Future Security Environment*, 13.

17. Ibid., 16.

18. Ibid., 13-14.

19. Don, *Allies and Adversaries*, 10.

20. Term coined by Van Creveld to refer to information gathering on part of the senior commander: "directed telescope which he can direct, at will, at any part of the enemy's forces, the terrain, or his own army in order to bring in information that is not only less structured than that passed on by the normal channels but also tailored to meet his momentary (and specific) needs." (Van Creveld, *Command in War*, 75)

21. Ibid., 326-327.

22. CNN Broadcast, 15 June 1992.

23. Francis Beer, *How Much War in History: Definitions, Estimates, Extrapolations and Trends* (Beverly Hills, CA: Sage Publications, Inc.,1974),8.

24. Carl Von Clausewitz, *On War*, ed. Michael Howard and Peter Paret (Princeton NJ: Princeton University Press, 1976), 87.

25. Allard, *Command, Control, and The Common Defense*, 237.

26. Don, *Allies and Adversaries*, 227-228, 231.

27. Commission on Integrated Long-Term Strategy, *Sources of Change in the Future Security Environment*, 2.

28. Van Creveld, *Command in War*, 234.

29. Commission on Integrated Long-Term Strategy, *Sources of Change in the Future Security Environment*, 2.

30. Ibid., 9.

31. Don, *Allies and Adversaries*, 251.

32. Ibid., 320.

33. Ibid., 263.

34. Commission on Integrated Long-Term Strategy, *Sources of Change in the Future Security Environment*, 7.

35. Ibid., 5-6.

36. Central Intelligence Agency, *The World Factbook, 1991* (Washington DC: GPO, 1991) 205.

37. Commission on Integrated Long-Term Strategy, *Sources of Change in the Future Security Environment*, 17.

38. Ibid., 6.

39. Ibid., 12.

40. Ibid., 11.

41. Gen. Alfred M. Gray, "Marines Streamline C^3I, Merge Interoperability," *Signal* (November 1989), 81.

42. Ibid.

43. Commission on Integrated Long-Term Strategy, *Sources of Change in the Future Security Environment*, 9.

44. Ray P. Linville, *Command and Control of Third World Forces: The Transfer of Military Capabilities* (Cambridge, Mass.: Program on Information Resources Policy, Harvard University, 1987), 32.

45. Ibid., 50.

46. Commission on Integrated Long-Term Strategy, *Sources of Change in the Future Security Environment*, 16.

47. Ibid.

48. Ibid., 10.

49. Ibid., 16.

50. Linville, *Command and Control of Third World Forces*, 30.

51. Ibid., 33, 47.

52. Commission on Integrated Long-Term Strategy, *Sources of Change in the Future Security Environment*, 22.

53. Linville, *Command and Control of Third World Forces*, 34.

54. Lt. Gen. Moorman, "Role of Space in War and the Defense Establishment," speech to International Security Studies Program, Tufts School of Law and Diplomacy, 29 Oct 1991.

55. Linville, *Command and Control of Third World Forces*, 64.

56. "The Networked Rebellion," *Technology Window*, October 1991.

57. "GlasNet: New Soviet Network," *Technology Window*, October 1991.

58. "After The Coup," *The New York Times*, 23 August 1991.

59. Everette E. Dennis, "Three days that shook the world," *Communique* 6 (September 1991): 2.

60. "The Networked Rebellion," *Technology Window*, October 1991.

61. Hubert Kertz with Anthony Oettinger, *With AT&T in Iran*, Seminar on Command, Control, Communications, and Intelligence, (Cambridge, Mass.: Program on Information Resources Policy, Harvard University, Spring 1984), 1-4.

62. Oswald Ganley and Gladys Ganley, *To Inform or to Control?* (New York, N.Y.: McGraw-Hill Book Company, 1982), 60.

63. Van Creveld, *Command in War*, 256-7.

64. Gladys Ganley and Oswald Ganley, *Global Political Fallout: The VCR's First Decade 1976-1985* (Cambridge, Mass.: Program on Information Resources Policy, Harvard University, 1987), 4, 9, 66-67.

65. Edward N. Luttwak, *Strategy: The Logic of War and Peace* (Cambridge, Mass.: The Belknap Press of Harvard University Press, 1987), 28.

66. Gen. Alfred M. Gray, "Marines Streamline C^3I, Merge Interoperability," *Signal* (November 1989), 81.

67. Allard, *Command, Control, and The Common Defense*, 249.

68. Anne Branscomb, *Rogue Computer Programs—Viruses, Worms, Trojan Horses, and Time Bombs: Prank, Prowess, Protection or Prosecution?*, (Cambridge, MA: Program on Information Resources Policy, Harvard University, 1989), 1.

69. Ibid., 2-3.

70. Daniel Knauf, *The Family Jewels: Corporate Policy on the Protection of Information Resources*, (Cambridge, Mass.: Program on Information Resources Policy, Harvard University, 1991), 109.

71. Ibid., 101.

72. Ibid., 106-107 and 114-115.

73. Brian Duffy and Peter Cary, "Hollow victory" and "The gulf war flu" from "From Triumph without Victory: the Unreported History of the Persian Gulf War," *U.S. News and World Report* (January 20, 1992).

5. People

The problem of modern command and control cannot be understood in isolation from who actually does the commanding and controlling—the human institutions—the government and military.

C. Kenneth Allard,
Command, Control, and The Common Defense[1]

Central to any discussion of coalition command and control are the people who interact, plan, and conduct the operation, and pay the price of failure. They bridge the gap between overall environment and impersonal elements and the actual conduct of an operation. They are essential to every aspect of the systems that support command and control operations. They are the enemies, the allies, the onlookers, the policymakers, the voters, and the ones who make things work.

This section discusses factors that influence the interpersonal interactions and decisions that are part of command and control and that may also significantly affect a coalition operation.

Cultural Influences

Differences in culture, philosophy, religion, ethnic background, and regional ties affect the way a national entity makes decisions, how much it is willing to participate in a coalition, and the basic mode of operation of its forces. These differences also require planners to address cultural barriers and sensitivities. These influences will raise many questions while planning a coalition operation. Planners need to be aware of the impact of regional variation.

"The Role of Intelligence in the Oriental Concept of Command" describes various Asian commanders' emphasis and use of Sun Tzu's dictum about "knowing the enemy" versus the lesser application of this dictum and resultant lack of knowledge by opposing forces.[2] Sun Tzu's dictum is one approach.

Combining several approaches to command within a coalition may cause tension, disagreement, and misunderstanding. Different philosophies about many things may conflict as well. Time management is one example. American visitors to other parts of the world are often impressed that time and order, important to Americans, are less so to others. Other cultures often find Americans too brusque, tending to underestimate the importance of good relationships and patience. Differences in what each considers basic knowledge, or common sense, can also cause difficulties.

Cultural perspectives on citizen rights and organizational values may also be vastly different.[3] Some thought should be given to the elements of social power that wield influence within the societies[4] that are represented in the coalition. The ethos of the time and society can affect command. People's view of taking orders and their expectation of the level of participation of their national commanders varies by nation.[5]

History often plays a larger role in international relations than Americans expect. "Europeans speak in historical terms much like Americans use sports analogies."[6] Without historical knowledge of the area and the coalition allies, including their past interaction, Americans may find it difficult to understand the allies' position in a coalition. Besides a general lack of historical knowledge, Americans also frequently reflect an apparent general lack of interest in world culture.

Despite a worldwide explosion in access to media, even among nations that would rather limit external influences, "the United States has the dubious distinction of ranking next to the People's Republic of China as the lowest on the list of the world's countries in importing foreign television programs. This is mainly a commercial question, but in some ways it makes the United States, the world's richest nation in communications and information resources, one of the world's most culturally deprived nations in terms of access not only to foreign television programming, but also to foreign books, newspapers, magazines, films, and news." This is significant because "as military means for solving modern international problems becomes less and less desirable, the understanding of men's minds takes on more and more importance."[7] This latter point is particularly true in forming

a coalition, where lack of understanding potential allies could be detrimental to success.

Religion is one of today's most sensitive and difficult barriers to unified efforts. It is often the cause of conflict and disharmony and a destabilizing influence within societies. A coalition of members with different beliefs requires education about taboos and expectations and an understanding of the limitations imposed by the beliefs. Planning for mortuary affairs, food supply, and medical care can be complicated. The spread of Islamic fundamentalism as a political movement increasingly affects U.S. relations and planning with Muslim countries.[8] Additionally, leaders of countries with a strong and vocal Islamic fundamental group may have specific difficulties because of participating in a coalition with "infidels".

National Perceptions

Perceptions or misperceptions affect the entire process of command and control—decision making, planning, preparatory activity, and execution.[9] Just as individuals have perceptions, so do nations. National perceptions can affect the leadership of a coalition. The conduct of a coalition operation may be a military function, but in other countries the political and military leadership are frequently more closely entwined than in America. Perceptions of the leaders of a potential coalition are affected by their own political systems, which filter information about international relations and other countries' internal systems. The ages of the coalition's leaders may also influence the ideas they endorse. Ideas that were formed and have lasted since the leaders first considered politics or from the time they first were successful tend to carry a lot of weight, so past events may have a delayed impact on policy.[10]

Perception of the nature of a threat and the best way to deal with it affects the choice of strategies. While the Korean War changed perceptions of war from the all-out attack of the Second World War to expecting more limited wars, this led to treating the Vietnam War as a conventional conflict until its guerrilla nature became clear and a new model was accepted. Subsequent, ambiguous conflicts such as Cambodia were viewed as guerrilla warfare and subversion, when they would have been

labeled a conventional invasion like Korea if they had occurred before Vietnam.[11] What factors affect perceptions of U.S. policymakers and planners now? These factors and their potential impact need to be acknowledged. What perceptions do potential allies have, considering they had different experiences or viewed the same wars from other perspectives?

States form opinions of each other based on actions, such as showing gratitude and generosity, trust and trustworthiness. States do not, however, assume that a state that helps is a friend—unless it helped without pressure or external control and influence. States must be flexible in relations. When a nation harms another nation, it is sometimes justified by claims that the good accrued was more important than the harm done. Just as an individual assesses another person based on actions observed elsewhere, nations similarly monitor and assess the behavior of national powers as they act in another part of the world. Misunderstandings can arise inadvertently. And as with people, states can transfer inappropriate inferences from one action to an unrelated action.[12]

Appropriate flow of information is critical; facts that are withheld cause problems in perception. What are U.S. intentions? How can the United States make sure it is correctly perceived (if that is what the national leaders want)? Policy at any level of any nation can have an unintended impact; and it takes work to clearly identify and explain the primary underlying goal.[13]

Fear is a powerful force affecting national perception. It can be very destructive, causing many of the aggressive actions that lead to war.[14] States may also fear setting a precedent that will affect future actions, or that concessions and moderation will not be understood for what they are, but will appear as unwillingness to wage war, thus inviting aggression.[15]

Misperceptions among state players can occur because of egocentricity, overconfidence in their own ability to affect others, or in overestimating the intent of others to do harm.[16] This is further complicated by a general tendency to believe oneself or one's nation to be always right.[17] It can be difficult to realize that actions that are intended only to defend one's vital interests can appear to others as directed against them. Because most means of self-protection can also menace other states, any state that has interests throughout the world is perceived as having the ability

to menace others. States often do not understand the context in which the other sees the behavior. Besides being familiar with their own intentions, and finding it difficult to understand that another states' undesired behavior could actually be provoked,[18] states frequently do not see that the other perceives an affront when none was intended. This can complicate the development of trust within a coalition. Given current U.S. capabilities and past tendencies to promote international order, many nations carefully watch.[19] This may affect willingness to participate in a coalition operation that is U.S. initiated and may affect role expectations.

Despite discrepant information, nations are predisposed to evaluate other nations based on governmental attributes and what is expected from them: democracy, dictatorship, ally, friend of ally, unknown. States assess their own actions differently from the way other states assess them, yet they think that others should interpret their actions correctly.[20] On the other hand, if there is a perceived general similarity among states, there is a tendency to assume the other state will act similarly, as well.

Just as individuals are inclined to think other's actions are more deliberately planned than they actually are, states also tend to view other states' actions as more organized, controlled, and deliberate than they are. Planners of coalitions should be aware and pleased that alliances usually appear to be stronger and more stable to outsiders than they do to the members themselves.[21]

Concern about other countries' perceptions can cause nations to be wary of joining the coalition, or otherwise affect the level of their involvement. In many Third World countries, getting "too close" to the United States is viewed with unease; either over concern about internal ramifications within their own country, or out of concern about what their neighbors will think.[22] In addition to possible negative reactions on the part of the potential allies, "Sometimes merely the formation of an alliance [read: coalition] is regarded as serious provocation by the country or countries it is targeted against."[23]

Given all the factors that can cause national misperceptions and their potentially negative ramifications, it is good to know that national beliefs can be changed, but change is slow. States are concerned about deception and thus, are affected more by action. Because beliefs are interrelated, one change of belief may

affect other aspects of the belief system. Extreme or fastly held beliefs and perceptions of hostility are particularly hard to change. This is especially pertinent for coalitions involving very dissimilar countries. Policymakers who sacrifice a great deal in support of what they believe to be correct tend to resist change.[24] But if the coalition goal is important enough, its success may depend on understanding and change in working with allies, despite any ingrained perceptions at any level.

National Persona

Every country has a national persona. For example, the United States occupies a position of power; consequently, it does not act as an underdog. Geographical location, the neighboring countries, and past experience affect the national persona. Specifically, the relative physical isolation of the United States, and of Britain to a lesser extent, have given them

> the luxury of relative invulnerability. These powers were therefore able to maintain small armies, avoid entangling alliances, view foreign policy more in terms of freedom of choice and morality than of compulsion and *raison d'etat* and react to foreign threats only in their later, and more clear, stages of development. But this happy circumstance had several less fortunate effects on British and American perception. First, to the extent that these powers did not realize that their interests and perceptions were shaped by their unusual geographical position, they could not understand why others felt that their security required extreme suspiciousness and quick reaction to distant or uncertain threats. In other words, the U.S. and Britain did not understand fully the implications of international anarchy and the security dilemma. This may also have contributed to the American tendency to categorize others as completely friendly or completely hostile, since they could not see limited hostility as a natural product of the international systems. [25]

Other countries have different bases for their national persona.

Besides geography, there is a specific historical factor that affects all nations. "The only thing as important for a nation as its revolution is its last major war. Because of the dramatic and pervasive nature of war and its consequences, the experiences

associated with it—the diplomacy that preceded it, the methods of fighting it, the alliances that were formed, and the way the war was terminated—will deeply influence the perceptual predispositions of most citizens."[26] Although attention in the United States has shifted to domestic issues, there is consensus that the Gulf War changed American views and expectations of war, including possibly expectations of coalition operations. This should be true for the other nations involved, as well as for those that watched.

Additionally, the relative degree of democracy within a country affects its perspective. Many Americans do not understand the level of social conflict in other countries and therefore are unfamiliar with obstacles to the establishment of democracy. It is almost incomprehensible that "internal violence in other countries may further democratic values or be a prerequisite for long-term stability."[27] Those working to build a coalition with nations struggling with these issues need better understanding and knowledge of difficulties and viewpoints in those countries.

Individual Perspective

Most participants in a coalition work at the individual level to understand and accept or change perceptions. "If he is to decide intelligently how to act, a person must predict how others will behave. If he seeks to influence them, he needs to estimate how they will react to the alternative policies he can adopt. Even if his actions do not affect theirs, he needs to know how they will act in order to tailor his actions accordingly."[28] Perceptions can affect the entire process of command and control—decisionmaking, planning, preparatory activity, and execution. Problems in perception can also occur among U.S. forces, but the problem is complicated by the cultural and national differences found in a coalition.

In planning for a coalition, we must view the world through the eyes of the other players to accurately interpret their actions and determine the best way to achieve a desired response or mutual understanding. This may require considering many options. Similar to national perspectives, many factors influence

individual perception and the development of beliefs, how firmly they are held, and the likelihood of changing them.

Throughout a coalition operation, as in most interactions, people tend to assess incoming information within context of the problem they are dealing with at the time the information is received. This can lead to miscalculating the level of understanding about what the other is trying to say. Even if the communication is not taken as an agreement or intent to act a certain way, it is often expected to be fully understood the way it was meant. This does not take into full account the degree to which the other may be concerned with different tasks and problems.[29] In a coalition, there may also be other agendas and goals.

Individual perceptions are affected by several factors. It is accepted that misperceptions occur under conditions of hostility and restricted communication. However, differences in information, perspectives, and time lags can cause misperception even when both parties have complete common interest, when no deception is intended or suspected, and when both parties are trying to communicate accurately. Having history of communication and cooperation does not prevent misperception because of unrecognized differences. In fact, prior cooperation will cause each to assume more quickly that the other shares the concerns and understands the message. Conversely, once a person develops a hostile image of the other, it is easy to attribute ambiguous and even discrepant information to that image. People tend to perceive what is expected to be present and are slow to detect changes in another party with whom they have had previous contact.[30]

Even when people have a lot in common, they can easily misperceive each other's actions simply because they are different people and they think differently. These difficulties increase when people with different world views are asked to plan and execute unity of command. When working with coalition allies, all members need to be aware of the influence of expectations and that everyone tends to fit incoming information into preexisting images. It is easy to prematurely exclude perceptions that do not `fit' and to forget that people are affected by established beliefs and predispositions which slow people's ability to change their minds. People also overestimate their

ability to both be sensitive to variations in others' behavior and to influence others' images of them. It will be helpful to be aware of any preexisting biases or perceptions on the part of all the coalition allies so that accommodations can be made where possible to facilitate working together.[31]

Personal Relationships

Relationships, at the state or individual level, have a significant impact on policy, operational effectiveness, and command and control. In a military context, "Combat operations today depend upon personal relationships that are sustained by electronic methods of communications, even though such methods might diminish the impact of personal leadership."[32] Admiral Metcalf was the joint task force commander of Operation *Urgent Fury* in 1983. His book about the Grenada invasion "provides a revealing insight into the importance he placed on his personal relationships with both higher and lower echelons in the chain of command."[33]

Established relationships can also have a negative impact. In the United States in the 1930s, previous interservice conflicts affected officers as they rose in rank: "These and many other officers, when they were later generals and admirals, never forgot the old animosities and personal bitterness."[34] Other countries have similar problems. During the 1973 Israel-Egyptian War, despite the good quality of the junior officer corps, there was little mutual trust in the Israeli Southern Command. This was because of bad personal relations among the senior commanders, and this lack of trust contributed to losses taken.[35]

In a more positive relationship, "Both Gen. Walter C. Short and Adm. H.E. Kimmel were all that might be hoped for as commanders operating under 'mutual cooperation.' Conscientious and courteous with each other, they maintained a working relationship that was cordial if not intimate. Each conceded 'paramount interest' to the other's sovereign areas, while 'cooperation' was supposedly the rule in all areas of common concern. Unfortunately, that cooperation did not extend to such elemental concerns as all-around surveillance and reconnaissance of island approaches, the preparation of overlapping air defense plans, or comparative assessments of

intelligence indicators."[36] The unanticipated price of this level of cooperation is buried at Pearl Harbor. Opportunities for cooperation are magnified in a coalition operation.

The effectiveness of several senior officers in the Gulf War was enhanced by their previous experience in the region. They had a working knowledge of the area. They knew how the Arab allies operated and how to communicate with them. The Arab allies knew or had heard of them, which gave the U.S. officers more credibility; and actual working relationships were established faster because of common ground. This would be true of any coalition. In some cases, senior leadership volunteered for duty; in other cases they were in the right position by chance.[37] Area specialists show up at all levels, even command level.

It is well known that the old-boy network frequently serves a critical function within national circles. According to the late Dr. Richard Beale, it also exists among those dealing with warning and intelligence estimates: "Not only does it exist, it is viable, and should be nurtured."[38] Keeping in mind the restrictions of national loyalties and how hard it is to prevent misunderstanding, some implementation of a network may be possible among individuals from different nations and could be fostered.

Creating an effective coalition without previously established, viable working relationships is extremely difficult. "Without interaction, different perspectives can lead to distrust, misunderstanding and unnecessary confusion."[39]

A factor not widely discussed in U.S. command and control is the need to compromise. Although acceptable in business management, compromise sometimes has a negative connotation for military people, implying loss or surrender. If negatively viewed in the command and control context, compromise could be construed as endangering the security or interests of the nation.[40] On the other hand, as Supreme Commander of Allied Forces Europe, General Eisenhower's well known ability to diplomatically compromise was very beneficial to the overall effort.[41]

In a coalition, compromise is an important part of command and control at all levels. This includes the recognition of the need to compromise to achieve the objectives of both parties, should they differ, or to achieve an agreed-upon objective, by accommodating different procedures, rules, etc.

Because compromise will be an important element in a coalition and will affect military comand and control and political interactions, a process to deal with compromise—or concession—is essential to achieve the ultimate coalition goal. Will compromise (the ability or the process) be affected in dealing with authoritarian or ideologically dogmatic allies? It may be useful to give this some consideration and identify what is critical and what is negotiable, and why. These efforts also can foster the development of a framework to use compromise if necessary in times of rapidly moving crisis.

The Commander

Referring to the standard definitions of command, command and control, and command and control system, "One of the most striking characteristics of these definitions is the extent to which they evoke the *personal* nature of command itself, especially being vested in an individual" [emphasis added].[42] The importance of the personality of the commander has long been recognized by students of war. "The real secret of leadership in battle is the domination of the mass by a single personality. Influence over subordinates is a matter of suggestion."[43]

The fundamentals of command vary with the character of the forces, the nature of the conflict, and the functions required of the operational people (air, either bomber or reconnaissance; land, either tank or infantry; naval, either intercept or amphibious landing support).[44] It would be expected that the character of a coalition force, the complexity of its makeup, and the reflection of its national entities, would impact fundamentals of command for the coalition forces.

All aspects of command, such as, accountability, responsiveness, responsibility, authority to order, and the right to expect obedience, require human cooperation. In accordance with U.S. Army field manuals, "the commander is responsible for all that his unit does or fails to do."[45] Are there limits to a coalition commander's responsibility? How are authority, obedience, and accountability guaranteed, especially when dealing with countries that recognize different philosophies derived from their own culture, religion, and so forth?

Current theory of command includes a debate over the role of commander in command and control. Is the commander the brains of the system or external to the overall process?[46] The answer may affect the importance placed on selection of commanders for various positions in an ad hoc coalition.

Study of international politics finds that within a country "organizational perspectives and loyalties are less important when issues are unusual rather than routine, necessitate relatively quick decisions, and involve important and generally shared values."[47] Because coalitions form only because of a common goal or interest, these factors (unusual, quick, shared values) may apply to a coalition commander and perhaps impact that role.

Commanders have always had to consider how the enemy will respond to the execution of a course of action, particularly in situations where the objective is to contain a situation or influence further enemy action.[48] In a coalition operation, the commander will also have to consider the allies and how they view coalition actions. The commander must also consider the action of neutrals who may act on their own opinions of ongoing operations.

Commanders are the recipients of orders. Commanders know what to do when they receive orders they disagree with from their national chain of command. What happens when orders come to a subordinate commander from a coalition authority outside the national chain of command and these orders are seemingly illogical, or put troops unnecessarily at risk, or any number of other possible variables?

The commander's decisions are based on information filtered through the biases that affect his thinking; sometimes warnings have been ignored in history because of a mind-set.[49] For example, Stalin refused to recognize the warning from his allies about the planned surprise German attack on Russia in 1941. Despite advance information, his mind-set rejected it[50], and the result was much unnecessary destruction to Russian property and people, and a long hard winter defending the Motherland.[51]

The commander is also an information processor, and `noise' can interfere with the process.[52] Noise includes institutional pressures such as an expectation of quick decision making.[53] There are also political pressures. Noise also includes physical, mental, and emotional `static', such as preconceptions,

institutional biases, norms, and conventions; and organizational structure itself.[54] The noise level is only exacerbated by a coalition.

A commander's leadership ability is affected by the individual's predispositions. Commanders are also affected by stress. Continuing the noise analogy, depending on the variables, what is music for one commander may be cacophony to another. "In addition to the individual and differing goals of the organization's people, there are several other imperatives causing stress. These are authority, accountability, responsibility, cooperation, change, and uncertainty."[55] Some of these imperatives are particularly difficult to achieve in a coalition, and hence potentially more stressful.

Plans can be suddenly and drastically altered by leaders acting under stress because of the shock of a major surprise or because of some calamity. History is full of senior leaders, civilian and military who, when badly affected by an event, responded erratically or who consequently suffered a psychological, emotional, or physical disorder.[56] If this were to happen during a coalition operation, how would it be handled? How would one know the leader was in trouble and not capable of commanding at the moment or in the future? The 1991 Gulf War did not give us an opportunity to answer these questions—at least on the Coalition side. These factors discussed above affect all levels of command, from the person(s) in charge of the whole operation down to the individual trooper.

The Staff

Every commander has a staff to "aid their boss in the line of duty."[57] This simple concept is complicated in a coalition. What constitutes aid? What level of effort is expected? Who will be the staff? What will be their training? Can the boss feel the appropriate level of trust if some of the staff is not handpicked or not of his own nationality? Training within the U.S. system tries to provide a sense of "how to recognize what is 'good enough'" operationally.[58] But what about other countries? What are their thresholds and standards?

"The minds of superiors and subordinates must be," as Brigadier General Richard Simpkin put it, "well tuned to each

other." Capable command and control, which comprises clearly understood doctrine, thorough training, and frequent and realistic exercises, is a prerequisite for such harmony.[59] Fusion centers must understand the mind-set and perceptions of the commander to provide information that is useful to the commander.[60]

Concerns about the development of the coalition staff merit some attention. An effective staff can overcome many of the difficulties inherent in a multinational operation. This, however, is not easy to do if the history of struggle between Service and joint proponents is any example. The first U.S. multiservice commands were created in the 1940s, but many problems were not addressed until the passage of the Goldwater–Nichols Act of 1986. Debate and problems continue today, partially because of a shared culture, i.e., ways of doing things, language, and so forth. Although contributing to unit cohesiveness and pride, feelings of "us" and "them" are reinforced by operational and functional area integrity.[61] These factors will affect a coalition command to an even greater extent and create additional work for the staff.

As an organization, the staff reflects the personality of the commander and is an extension of the means by which the forces are controlled. This effort "...operates as a continuum...staff members gather the initial information on which the commander's decisions are based, write the plans that will carry out his orders, and supervise their eventual execution."[62] At what point on this continuum are the coalition partners involved? How much will they do? Does the type of coalition affect involvement?

One of the functions of staff is to ask questions that challenge both new assumptions and the status quo. To ensure all alternatives are explored, decision-makers need to encourage a high level of inquiry. It is hard for one person to examine all the alternatives, so it helps when the staff composition reflects different views.[63] Who will represent the coalition forces?

In determining the composition of both the operational staff and the long-term planning staff, people with experience in the relevant countries are invaluable, as is openness to new ideas. Can a standard optimal operational staff organization be designed as a guide for the theater Commanders in Chief (CINCs) to use in establishing a coalition staff? Is there a way to incorporate diversity into the daily or long term planning staff for both the

functional and theater CINCs? When, how and who, of the established or potential coalition allies will be included?

Training The Forces

A person gives an order, and a person must understand it. "The authority of the order exists only when the order is carried out" by the forces.[64] Is it necessary in a coalition to establish special procedures to ensure the order is correctly relayed and acted upon?

Future coalition operations will be affected by the Goldwater–Nichols Act, which allows the theater CINC to pull from the Services as needed. Congress was pleased at the Act's impact on *Desert Shield* and *Desert Storm*. Taking into account the smaller size of future coalition operations, will the military be able to support two or more simultaneous coalition operations? What will be the effect of downsizing the U.S. forces (as well as those of some of our familiar allies)? What forces may be required to dispatch selected tasks? What should be done to enhance U.S. response flexibility? Will we have to rely more on the assets of other countries?

Some of our allies have large ground forces. In a coalition effort, therefore, there may be small demand for U.S. ground forces. Depending on the nature of the operation, the contribution of the different Services may vary. The overall force required is affected by environment, situation, cause of the coalition (human enemy or catastrophic event) and level of capabilities available on both sides. The ability to use a force effectively has a lot to do with its level of training. The solo enemy has the advantage of an established unity of command and a force that has trained together. A coalition must work with and around its national diversity.

Military training is spoken of in such terms as sorties, maneuvers, and assault exercises. The systems at different levels of command must work together and support each other, often across subunit lines. In a coalition, the effective interaction of levels of command and unit distinctions will be affected by the design of the coalition organization. In an ideal world, "When these forces are well designed and well trained, the result is a robust, decentralized, largely self-executing system which can

withstand the shocks and changes inherent to warfare on land." And, "Troops who have been fighting for a long time work out procedures for themselves, organizations do not change their people very much, and so good units get better."[65] What will achieve this level of unit coordination and experience among possible coalition members? What can be done ahead of time to prepare for the difficulty imposed by a limited time to train for an ad hoc operation?

Understanding the impact of perceptions and how they form may be useful in developing training programs for coalition operations, for U.S. forces, and for allies. Training may be planned in the regular way or it may be the minimal required to meet a short-notice crisis. Although a person's background and culture will cause a predisposition to perceive certain objects, thorough instructions can serve the same purpose. The person does not have to be already familiar with the object. For example, even if a person has never seen an object before, adequate instruction and the expectation of viewing allow perception of it faster than if it were not expected. The down side is that something that isn't there may also be seen quicker.[66]

That each person hears or sees most readily in his or her own language and cultural context[67] makes coalition operations and training more difficult. Using common symbols and procedures helps. Consideration about who (staff, commander, or unit) needs what training and how best to accomplish it might position the next coalition for faster startup and operation.

Perceptual Pitfalls

One theory says that history influences current perceptions, however, opinions differ about whether it bolsters established beliefs or provides analogies for current events. It may be a circular question to ask whether current policy affects interpretations or interpretation affects policy. Robert Jervis cleverly rewrote Santayana's maxim about history, "Those who remember the past are condemned to make the opposite mistakes."[68] Old lessons or perceptions may affect current interpretations.

There are several perceptual pitfalls to avoid both as we determine or review the lessons learned (after-action analysis)

from any operation. Context may change and result in over-generalization.[69] Too simple a standard of success or failure (that is, one that is cut and dried, with no in-betweens) may be accepted.[70] Careful analysis of possible future events is necessary to determine whether the tactic that worked in the past may work in a different situation.[71]

A selection of comments dealing with analysis discloses potential pitfalls of after action reports:

> The interpretation of each act is unavoidably conditioned by the hypotheses that are held" and there is "the need to fit data into a preexisting framework of beliefs," despite an awareness of discrepant information. "Those who are right [analyze the situation correctly], in politics as in science, are rarely distinguished from those who are wrong by their superior ability to judge specific bits of information. . . . the expectations and predispositions of those who are right have provided a closer match to the situation than did those of those who are wrong. . . . One implication of this analysis is that successful detection of military and diplomatic surprises is less likely to be explained by the skill of the intelligence service in piecing together arcane pieces of information than by the degree to which the service's predispositions and expectations fit the actions that the other is planning to undertake."[72]

Just to fan the flames of Service rivalry, there are some who say that during *Desert Shield* and *Desert Storm*, the contribution of the Army was not as necessary as in other wars, that the Air Force was more important, and the Navy only provided limited support. However, any example may be very misleading if it is not carefully studied and compared against past and possible future scenarios involving coalition operations.

Notes

1. Allard, *Command, Control, and The Common Defense*, 241.
2. CDR Don Chipman, "The Role of Intelligence in the Oriental Concept of Command," *Marine Corps Gazette* (July 1991): 86-90.
3. Carrington, *Command Control Compromise*, 20.
4. Ibid., 12.
5. Van Creveld, *Command in War*, 50.

6. General John Shaud, Former Chief of Staff, Supreme Headquarters Allied Powers Europe, speech to the Air Force Research Associates Alumni Association, Ft. McNair, Washington, DC, 4 February 1993.

7. Oswald Ganley and Gladys Ganley, *To Inform or to Control?*, 67-68.

8. Barbara Crossette, "U.S. Aide Calls Muslim Militants Big Concern in World," *New York Times*, 1 January 1992.

9. Additional information is found in *Perceptions and Misperceptions in International Politics*, by Robert Jervis. While the author talks in this book about policymakers and national leaders, the principles discussed also affect commanders, staffs, and forces and will be particularly important with the multinational aspects of a coalition operation.

10. Jervis, *Perception and Misperception*, 253, 259-260, 283.

11. Ibid., 267-268.

12. Ibid., 41-45, 53, 337, 339.

13. Ibid., 39, 47, 210.

14. Ralph K. White, ed., *Psychology and The Prevention of Nuclear War: A Book of Readings* (New York: New York University Press 1986), 280.

15. Jervis, *Perception and Misperception*, 58-59, 103.

16. Ibid., 214, 344, 349.

17. White, *Psychology and the Prevention of Nuclear War*, 287.

18. Jervis, *Perception and Misperception*, 63-64, 354.

19. Edward Mortimer, "Southern Discomfort," *Financial Times*, 12 June 1992: 16.

20. Jervis, *Perception and Misperception*, 69, 146, 186, 286.

21. Ibid., 319, 326.

22. John Maurer and Richard Proth, ed., *Military Intervention in the Third World*, (New York, NY: Praeger Publishers, 1984), 108.

23. Seyom Brown, *The Causes and Prevention of War*, (New York, NY: St. Martin's Press, 1987), 66.

24. Jervis, *Perception and Misperception*, 299, 304, 309, 311, 315, 394.

25. Ibid., 272-273.

26. Ibid., 266.

27. Ibid., 19, 284.

28. Ibid., 32.

29. Ibid., 215-216.

30. Ibid., 68, 206, 214-215, 243.

31. Ibid., 8, 410.

32. Snyder, *Command and Control*, 73.

33. Ibid., 49.
34. Allard, *Command, Control, and The Common Defense*, 97.
35. Van Creveld, *Command in War*, 228-229.
36. Allard, *Command, Control, and The Common Defense*, 97.
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43. Major General Baron von Freytag-Loringhoven, *The Power of Personality in War*, (Harrisburg, PA.: The Telegraph Press, 1955), 25.
44. Van Creveld, *Command in War*, 262.
45. Cushman, *Command and Control of Theater Forces*, 3-9.
46. Coakley, *Command and Control for War and Peace*, 41-43.
47. Jervis, *Perceptions and Misperceptions*, 26.
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54. Coakley, *Command and Control for War and Peace*, 180.
55. Carrington, *Command Control Compromise*, 29.
56. Beaumont, *The Nerves of War*, 42.
57. Van Creveld, *Command in War*, 27.
58. Coakley, *Command and Control*, 181.
59. Ibid., 109.
60. Snyder, *Command and Control*, 152.
61. Cushman, *Command and Control of Theater Forces*, 3-12, 3-15.
62. Allard, *Command, Control, and The Common Defense*, 28.
63. Jervis, *Perception and Misperception*, 200, 415-416.
64. Carrington, *Command Control Compromise*, 29-30.
65. Cushman, *Command and Control of Theater Forces*, 2-17.
66. Jervis, *Perception and Misperception*, 149-151, 147, 286.
67. Ibid., 148.
68. Ibid., 217, 225, 275.
69. Ibid., 231.

70. Ibid., 232.
71. Ibid., 231-232, 248.
72. Ibid., 156, 171, 179, 180.

6. Operational Factors

Command and control is both a process [by which] commanders communicate with superiors and subordinates; receive their missions; learn everything they can about the enemy, the environment or battleground, and their own force; make their battle plans; assign tasks to subordinates; monitor the battle; compare what's happening in the battle with their battle plans; decide what adjustments are necessary; make them; and, finally, evaluate the outcome of the battle [and a system] the arrangement of personnel, equipment, communications, facilities, and procedures they use to do all these things.

Thomas P. Coakley,
Command and Control for War and Peace[1]

The next area to be considered is the process of the coalition operation itself, both the planning and the execution. Like unilateral operations, coalition operations can be used for a range of conflict, from low-intensity conflict to general nuclear war (figure 4). Such operations can also be effective in engagements that include special operations and peacekeeping, civilian affairs, relief efforts, and nation-building support.

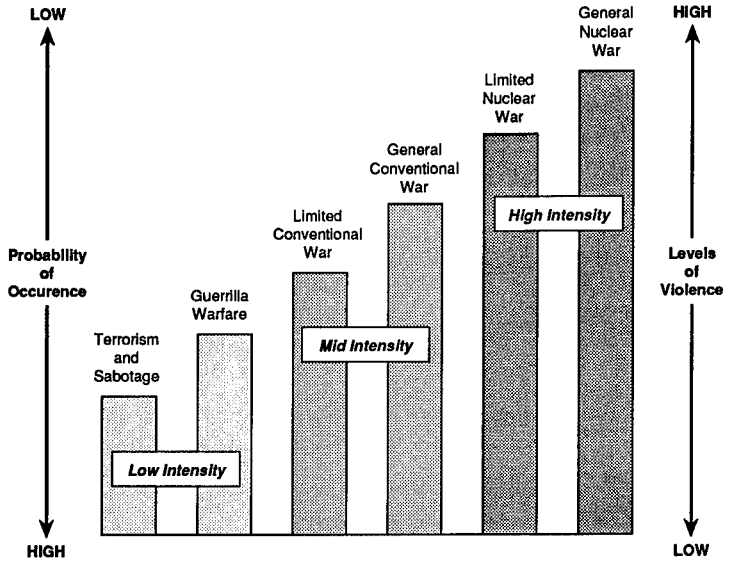
For purposes of this discussion about operational factors, the process of command and control is separated into two phases: planning and execution. The first phase reviews planning procedures and associated responsibilities of the commander in charge of the operation. The second phase, or execution of a coalition operation, has specific operational, intelligence, logistics, communications and support components.

Planning

> defense planners must attempt to anticipate the future security environment, despite the difficulties of doing so, not only to guide decisions about weapons development and procurement, but also to inform the development of strategy.[2]

In planning for coalition operations, it is necessary to determine a feasible level of planning. Choices range from doing nothing to preparing for all possibilities. The latter is impossible, if only because of limited resources. It may also be tempting not to do any specific planning because the reason, place, and composition of future coalition operations is unknown. Neither extreme is acceptable. It may be practical to incorporate coalition planning

Figure 4. *Spectrum of conflict*[3]



Source: Adapted from a 1st Special Operations Command briefing slide, Fort Bragg, North Carolina, 1988.

into overall planning, at the same time meeting the requirements of unilateral action. This may be possible if the requirements of coalition operations can be accomplished by a measurable degree of added effort and identifiable resource expenditure.

To be effective, planners must know what is needed and expected for coalition planning. Results could range from broad guidelines with a general framework and possible plans and options to a completely planned and prepared infrastructure with specific checklists. Or, there may be selective application of specifics where possible and general guidelines where not. They need to know what resources are or may be available and what the probable tasks will be. Although planning for unilateral tactical operations is difficult because forces may be mixed and the objectives may not be clear, it gets done. This capacity for flexible planning can be applied to coalition operations.

A number of questions could be asked during review of past coalitions: What are the key elements of successful and unsuccessful coalition efforts? What were unique coalition actions and can they be reasonably replicated? Is it possible to develop some constants; what was the same in all the operations? What can be incorporated into other plans? What can be done to prepare for the rest of the 1990s, for the year 2000, and beyond? Are there actions and procedures that have a long lead time and need priority attention? What are the more flexible options that may be left for the last minute, on an as-needed basis?

Planning for coalition operations includes determining methodology to transition into an actual operation and check points to prevent being pushed into an avoidable conflict. It also includes methods of ending the operation and extracting the United States from the engagement, with and without the coalition allies. Planners may consider what would cause the United States to enter a coalition situation and how U.S. force issues and policy might affect our participation in coalition operations. While a graduated warning system would ensure time to explore other options, is the current process attuned to coalition operations? Is it receiving sufficient funding and attention?

Systems development is affected by planning for coalition operations. Development of a coalition command and control structure may require adjustments similar to those that ensure Service interoperability. Specific equipment requirements are affected by standards of interoperability, cost factors, and potential security concerns. This is no minor matter.

In planning for coalition operations, the nature and design of forces must be considered: "U.S. forces must be sized and shaped to deal with the threats of a new security environment."[4] In addition to defining forces required for peacekeeping and nation-building activities, planning for coalition operations may impact the composition of forces available for other military activities. As the military budget and the overall force are reduced, forward thinkers plan to complement rather than duplicate, and planners must be more flexible and creative. The U.S. military, if acting alone, might not have all necessary assets available. Although the *National Security Strategy* (1991) talks about an increasing role for the United Nations,[5] questions concerning the use of military force under the auspices of the United Nations will also impact other U.S. planning. If the military doesn't have adequate plans to fight with the benefit of integrated forces, that option may be eliminated from the available choices.

Force design (structure) and the war-fighting capability that the design fosters affects the ability to generate operations tempo, a major factor in a force's ability to achieve victory.[6] This ability affects and is reflected in current doctrine based on using U.S. forces only. Incorporation of coalition forces into the overall battle plan may impact the ability to generate operations tempo because of differences in capability or doctrine of the coalition members. If there is adequate time, this problem may be readily solved. However, an ad hoc coalition will generally allow minimal time to prepare, and this issue may adversely affect the campaign.

The required detail of specific coalition planning depends on how complicated the operation is expected to be. Will the battlefield be divided into sectors, or airspace by time, or will there be a total integration of effort? Can it be determined for each possible conflict where the optimum match of force is and what effort will provide the most effective results?

If national doctrines differ a great deal, planners may need to divide forces using different doctrine into their own separate areas of operation. Command and control requirements will be driven by the makeup of the coalition, and this limitation must be recognized. Unless potential allies train together, it may be better to assign separate but coordinated tasks. This may not be the optimal method, but it might achieve better results.

As the actual operation is planned, are the various skills of the coalition forces recognized and used for maximum effect, yet tailored to the capability of each nation? As discussed in this section, operational planners must determine how integrated the operation will be (within the parameters decided by political decision or necessity). This decision is reflected in the selection of forces (special forces, air, ground and naval) and how the combined operation is orchestrated. This, as well as issues mentioned in this section, affect how the coalition operations center is designed and functions. Many procedures will be affected by the equipment and resources brought to the operation by each ally.

Planning is a process:

> In a time-flow sense, the command and control process for any commander subdivides into three parts:
>
> - the process that leads up to the situation assessment (or information decision),
> - the process that supports the making of operational decisions, and
> - the process that ensures execution of operational decisions, and monitors the progress of operations.[7]

When is it appropriate or necessary for coalition members to get involved? When should the coalition command and control planning organization be established?

The ability to plan is dependent on access to an up-to-date database in order to determine available resources and logistics requirements. Among other details, specific data requirements include the number of personnel, the weight or bulk of equipment and support to sustain them, and transportation requirements. What other information is needed from the allies? How would it be obtained? Depending on the operation, would it be included in a U.S.–only database or a jointly accessible database? How would allies be included in the strategic plan, mission statement, and concept of operations? How do regional efforts affect each other? If some forces will be provided by coalition allies, how will the regional CINC determine which real-world units should be included in plans? Would all this planning wait until the crisis occurred?

The foregoing questions assume that the United States is the dominant power making the decisions and doing the planning. This may not be the case. Is the U.S. military prepared to participate equally, having decided U.S. requirements and flexibility? Are we prepared to play a supportive role to other national planners? What are the parameters of U.S. participation?

Joint Staff Planning

Given U.S. domination of past combined activities, a brief look at the joint planning process[8] is pertinent. Its ultimate purpose is to convert national strategy into joint operational plans that effectively use military power to support national interest. Different aspects of the overall process address budgetary, funding, and acquisition matters, while actual plan preparation is accomplished via the Joint Operation Planning System. Each portion of the overall process has its own cycle of repetition; each begins several years before it is to be effective. Other nations, or alliances such as NATO, have their own systems. How well would these planning efforts mesh in a truly combined coalition planning effort?

Joint planning follows set procedures. These are either peacetime, known as deliberate planning, looking 18 to 24 months ahead, or crisis action procedures, needed in a few days. They are both designed to select the "best means" in an "orderly and thorough" manner, constrained by Congressionally funded resources or political and diplomatic considerations, in determining required resources and how best to use existing capabilities to accomplish a specific plan.[9] Because the peacetime planning cycles cover several years, frequently crisis action procedures must be relied on to assure responsiveness to short notice, ad hoc situations. At what stage in these planning procedures is coalition warfare considered? Can any adequate, peacetime plan be prepared for a coalition operation without participation from anticipated allies? If the peacetime planning process is used for an operation, would any allies be asked to participate in the planning? This could have possible political and security implications. What are the available resources of a coalition?

A successful campaign plan includes several elements: mobilization, deployment, employment, and sustainment

planning. In the simplest coalition, allies would expect to participate in employment planning. During Desert Shield, planners found the "process" of planning almost as important as the plans themselves in terms of building relationships and understanding of intent.[10] Are there procedures for planning simultaneous coalition operations in the same or in different theaters? Is a process available to eliminate conflicts in resource requirements? How would shortages in one operation affect allied participation? The composition of the coalition may be dictated by what resources each ally had available. Who would be in charge if allies provide more resources than in the past, or more than the United States?

The Joint Planning and Execution community includes those "command and agencies active in the training, preparation, movement, employment, support, and sustainment of forces in a theater of operations."[11] Can and will other countries, perhaps selectively, be included in this community? By law "it is the responsibility of the Services to recruit, organize, supply, equip, train, and maintain forces for the combatant commands."[12] How will they effectively plan to equip and train to get along with those with whom they will ultimately work? The Services are responsible to address joint training that supports the CINC operational requirements.[13] Will they also voluntarily consider training and preparation for coalition operations?

The goal of mission analysis is to know the enemy, the resources that are available, and the physical conditions. The "mission is derived from the task assigned by higher authority and includes the reason for that task" and "who, what, when, where, why, and possibly, how."[14] In a crisis action coalition, what procedure is used to obtain needed information quickly?

Assumptions are used to cover gaps in knowledge over which the commander has no control, and at times they must be used as facts in order to facilitate decisionmaking. However, alternate plans are needed in case an assumption is wrong. Planning for the possibility of an unspecified coalition increases substantially the number of assumptions made. Although assumptions must be made, "planners cannot assume a condition simply because of the lack of accurate knowledge of friendly forces or lack of intelligence about the enemy."[15] This need to know may increase desired information-sharing requirements with specific allies,

even though the future political environment may still have to be assumed.

In a crisis or time-sensitive situation, the planning procedure shortens to fit the time available, previous planning is used, and rapid and effective communication is necessary. Crisis planning is also generally closely held. What allies would be included and when? Would we have the necessary means and procedures to communicate quickly with the allies? The CINCs assess the situation and report possible courses of action, one of which is selected by the National Command Authority (NCA). For a coalition operation, how will allies be included when choosing the option? In a coalition, when and how will other forces participate in the development of an operational order (OPORD)? Would flexible options be included? What would the United States take a hardline position on? What factors in the operation at hand would impact these decisions? As supporting OPORDS are developed, will coalition allies be developing their own supporting plans? What efforts would then be necessary to eliminate conflict?

The concept of operations (CONOPS) outlines what course of action the commander intends to pursue. What if the commander isn't American? Normally, the execute order comes from the NCA via the Chairman of the Joint Chiefs of Staff. How would this be affected if a country other than the United States had overall authority for the operation? What if the United States is ready before the other nations and the situation gets worse? What about forces turned over to another nation's command? What if we don't like "their" plan but are politically committed to support the operation? What if U.S-committed forces are endangered?

In support of joint planning, the Joint Deployment System "was developed as a real-time, transaction-oriented, distributed database" to be used as a key automated data process tool for both long-term and crisis planning.[16] In the interest of time, would procedures allow more "trusted" allies to interface on a limited basis? Would it be useful to have procedures for quick liaison with other nations? Is a separate coalition database needed?

In a NOPLAN situation, nothing is prepared ahead of time. Operations, time-phasing of forces, and support requirements are needed. If there has been no advanced coalition planning, each

operation is effectively a NOPLAN situation. To avoid this, perhaps there could be a decision about the basic level of planning that can be done, with resultant increase in the depth of coalition planning.

Who Is in Charge of Planning?

National Military Strategy puts responsibility for preliminary coalition planning onto the regional CINCs with "broad policy and strategy guidance, mission assignment and final plan review . . . by the Secretary of Defense." "The assumptions, concepts of operations, and specific forces to be deployed are determined by the CINCs and approved by the Chairman, Joint Chiefs of Staff, in close coordination with the Services and defense agencies."[17] Because the Combined Joint Task Force concept draws forces from all the Services, there are policy issues and procedural matters that must be settled at DOD, JCS, as well as Service level to enhance CINC capabilities. The higher level attention may be necessary to eliminate potential conflicts from multiple scenarios.

Given the complexity and diversity of world conflict, using the theater CINC as the focal point of planning for the region sizes the problem into a more manageable portions. This also facilitates the concentrated use of area specialists and appropriate representation from each Service. Are theater CINCs currently staffed to accomplish the level of peacetime planning needed for readiness in coalition operations and campaign planning? Is their staff sufficiently knowledgeable of available resources from various sources for planning?

There is a significant difference between crisis and peacetime planning:

> Unified commanders today do not doubt that, in war, if it should come to a crunch between them and their Service component commanders and mission accomplishment is in the balance, they have the authority to get done what needs to be done, whatever the language of the *UNAAF* [*Unified Action Armed Forces*—Joint Staff publication providing doctrinal guidance]. . . . However, the same clear-cut feeling of authority does not prevail when it comes to peacetime planning, or to working out operational concepts, command and control procedures, or command relationships (either in operations

> plans, or in exercises, or in training SOPs [standardized operating procedure]), or to governing the installation of command and control systems for coordination of multiservice operations.[18]

These issues of peacetime planning will complicate anticipatory coalition planning.

Traditionally, the field commander has two kinds of responsibility: to accomplish the operational mission and to achieve the highest level of force readiness for his command using the resources provided.[19] A coalition operation complicates these responsibilities. For instance, other nations may be responsible for force readiness for significant numbers of overall resources.

Questions about the use of a joint task force can be modified to address a coalition or combined operation: Who should act as coalition task force commanders? Where should their staff come from? What command facilities should they use for the exercise of combined command? Are their organic facilities suitable? Should command be open to any qualified commander of air or land or sea forces of any nation? Should the staffs of these commanders include combined forces in preparation, or is it possible to augment only when necessary? How can coalition commanders predict the level of interoperability achievable among their forces? What are the training and exercise implications of using combined task forces?[20]

While reviewing actions taken to cope with crises, many analysts noted that original plans were frequently not followed as well as they could have been. While von Moltke the Elder warned that no plan survives contact with the enemy more than 24 hours, changes made often exceeded the demands of the crisis, reflecting decisions made under great stress.[21] Regardless, it is to be expected that any advance coalition operations planning may also require changes in the face of reality.

Execution

The actual execution of an operation is greatly affected by the amount and quality of planning, as well as by all the previous variables discussed. Effective execution requires that all functional elements, such as operations, intelligence, logistics,

communications, and other support activities, do their part and support the operational requirements. Each is important to the whole operation:

> The nature of theater forces command and control systems is a web of interconnected subsystems supporting the entire spectrum of functionality of the operation from top to bottom, but with parts of it not being under the commander's authority. . . . because no two forces are exactly alike, no two 'webs' that make up the command and control systems of forces will be exactly alike.[22]

Let's examine how these internal dynamics are affected by a coalition operation and their possible impact on coalition command and control, and then proceed to the area of interoperability—how, how much, what, where, when.

Operations

Command and control of forces is a major part of operations. This and other operational factors are complicated in many ways by coalition operations. Chances of unexpected difficulties caused by differences in procedures and experiences will be exacerbated.

Responding to incidents of friendly fire in the Gulf War, the military increased its efforts to develop identification devices. One suggestion was to attach an electronic beacon to the exterior of U.S. ground forces' vehicles.[23] But temporarily installed devices may fall into enemy hands and there are other issues to resolve. Very significant to a coalition operation is the question of how to ensure that all members of the coalition can identify other members. With the variety of weapons and machinery used, this could possibly include the same weaponry on both sides.

The level of operational difficulty is affected by how the operation is conducted, whether there are mixed or fully integrated forces, what the specific areas of operational responsibility are, and how dense the "fog of war" becomes. Also important is the affect of differences among the allies concerning the rules of engagement. Rules of engagement differ greatly among nations; for example, a warning shot may be fired in front

of the ship (United States), across the bow (United Kingdom), or by a machine gun into the wheel house (France), depending on national guidelines.[24] Likewise, if coalition members possess varying degrees of experience in a specific function, such as was the case in *Desert Storm* concerning mine-sweeping operations, it may be difficult to synchronize efforts.[25] From a U.S. perspective, if the United States is not strongly represented in a specific functional area, it may be more difficult to control or influence it as well as desired by U.S. leadership.

The use of fusion centers to filter, correlate, and analyze information for the commander is well understood.[26] But which commander has control of the fusion center? Who will be represented in it? How will an appropriate level of trust develop, and how will it work despite differences in national biases and skills? What roles will the ranking national commanders have? Will they simply be briefed, allowed to participate, or excluded? Will it depend on current strength of ties, history, level of participation, or other considerations? What will be the impact of classification requirements?

A command and control fusion cell at the CINCs that includes a combination of intelligence planners and operations planners should enhance scenario development and aid development of a target database. When the target list is developed, can it be disseminated in a timely manner to all tasked units, including coalition allies, so that delays affecting the overall timing and effectiveness of the operation can be prevented?

Although a combined fusion cell is effective in either a unilateral or established alliance operation, an ad hoc coalition includes representation from unaccustomed partners. These nationalities may present a variety of planning styles to mesh or to change. Their strategic and tactical outlook may differ and security requirements for intelligence may be complicated.

Intelligence

Intelligence in any coalition framework can be a two-edged sword. It is very sensitive business to share intelligence on a common enemy while monitoring the political attitudes and military capabilities of the coalition partners to assess the continuing viability of the coalition. Yet, intelligence sharing as

part of a coalition also can be an instrument of policy to be used to signal our trust and friendship, and to influence decisionmaking by coalition partners.

Intelligence gathered from U.S. warning indicators would have to be shared in a coalition operation. As recently as 1984, after years of NATO cooperation, there were still problems with NOFORN[27] material and with working simultaneously with the allies. It was necessary to work individually with countries even though they may all have received the same information.[27] What arrangements could be made to deal with this issue early in the coalition formation? What will be the mechanism to pass intelligence information quickly, including 're'classification of materials as required?

There are many other questions about military intelligence. What emphasis should be placed on the different roles of intelligence in a coalition? How much is needed? Who will filter it and why? How will it be controlled? How will national sensitivities be affected or worked around, including our own? Who determines what intelligence should be shared, and who decides with whom to share intelligence? Will it be those in the field or those in the nations' capital? One would expect commanders in the field to be more open than intelligence officials not in theater. However, even if sources and methods are satisfactorily protected, there is still the possibility that after a nation is given the 'good stuff,' it may not be willing to accept something less once the fighting stops. How can other countries be convinced to share their intelligence information? What will be the 'language' of intelligence sharing? What communications channels will be used?

Another issue is how to organize intelligence assets to support coalition warfare. There is a wide range of possibilities. One variant is the NATO experience, in which countries have had many years to develop a combined intelligence structure. Another possibility is the Persian Gulf experience, where most arrangements were ad hoc and where not all partners were considered equals. Bilateral agreements and increased cooperative sharing can enhance an ad hoc coalition by developing preliminary working relationships and a basis for sharing intelligence information. As discussed in chapter 5, fusion centers must be attuned to the commander's perspective

and needs. How will the commander's requirements be clearly defined to an intelligence support staff composed of different national backgrounds, training and mindset? What tools does the fusion center need to work with inputs in different formats, language and levels of restricted information?

Clearly, selection of information to be made available can inadvertently affect decisionmaking. The determination of how much information is really needed for command and control is essential. Other countries frequently make decisions based on less information than the United States requires because they possess less capable intelligence resources. Or, it may just be that their tradition, training and culture increase their willingness to take risks based on less information. What is normal for the United States may produce an information overload for the allies. This capability may also provide the United States with a potential bargaining tool.

The United States often has most of the intelligence assets. Few others can come close to matching U.S. intelligence capabilities, and this is not likely to change soon. By using U.S. intelligence capabilities as a combat multiplier, the United States may possibly justify seeking a greater contribution of combat power or other resources from the coalition partners. Conversely, the role of human intelligence (HUMINT) can be very significant in areas where the United States has little HUMINT capability. Coalition allies may be able to contribute HUMINT information of great value to the coalition operation.

Logistics

Delays in a "full up" status (having all required resources in place and operational) can significantly impact operational decisions and can also affect the adequacy of command and control. Even more obvious is the affect of the crisis location. How long will it take to get there? What are site preparation requirements? Is local infrastructure available to support an influx of personnel and equipment? Prepositioned assets can enhance overall force readiness. A decision to plan for coalition operations may call for prepositioned assets. This in turn may require coordination with other countries to maximize options, and it may affect prepositioning locations and equipment selection.

Standard questions arise: Who provides the equipment? Who will meet the maintenance requirements? These issues are more complicated if allies have prepositioned equipment that becomes part of overall operational assets. Will the allies maintain their equipment in a state of readiness so that the United States can rely on it? During an operation, the variety of weapons systems equipment not only affects recognition requirements, but it may necessitate logistics knowledge of equipment not in the national inventory.

If the United States is responsible for all supplies, equipment, and manpower, logistical issues are less complex than if other countries provide key portions of total resources. Traditionally, the international view, supported and fostered by the United States, is that logistics is a national responsibility. A Rand Note published in 1990 addresses some possibilities and questions associated with coalition logistics, such as: How integrated would coalition logistics be and in what areas? Could there be specialization, that is, one nation provides air power, another provides land forces, and so forth?[28]

The Rand study raises a question: Should there be more host-nation personnel than U.S. personnel for logistics support? The study then goes further: "turning the warfighting over to allies and letting the United States handle logistics also is worth reviewing." The Rand study recommends giving serious thought to the following questions: What management structure is needed for mutual allied support? What are the logistics concepts and structures of the allies that the United States should know? What infrastructure issues are involved in mutual allied support? What will be the scale of mutual allied support? What are the chances of survival of prospective forward depots?[29]

As with most facets of coalition operations and crisis planning, congressional interest and participation influence prepositioning decisions. Other considerations that affect the logistics area are tendencies toward protectionism, or the fear of economic, political, and technological implications. Additional factors are: concern over vulnerability to interdiction; loss of jobs; questions of dependability; the need to have extra equipment and material ready for a surge; and the determination of requirements for wartime rather than peacetime.[30]

The United States extends and receives specific weapons system support from allies. During the Gulf War, the Royal Saudi Air Force supported Air Force F-15s in the initial deployment. However, current U.S. activity in cooperative logistics efforts is primarily peacetime oriented.[31]

There are elements (security related, certain weaponry, specific technology) that must remain country-distinct. However, given the broad range of support provided by logisticians from most nations, there are many opportunities to share logistics support. For example: cross-service equipment and provide mutual repair and resupply; supply transportation, by truck, rail, ship, air; share housing and troop assembly; share storage and transfer; and share aerial port services. After the Falklands War, the British decided they needed a major upgrade in airlift capability.[32] No country, however, is likely to achieve the U.S. airlift capability. Only the United States has "any significant strategic lift capability and the logistic support apparatus necessary to deploy" a major force.[33] Would the United States consider trading types of support, and if so, under what conditions?

Communications

There are three areas to consider under communications: One is the information itself; two is the technology used; three is the language used to communicate.

Information. One can affect intelligence decisions by selecting the information that is made available. That also extends beyond military intelligence to the larger field of any information pertinent to the situation. There are some who say there is too much information, even in unilateral operations, and information flow must be simplified to essential elements only.[34] In the uncertain environment of coalition operations, the information flow might be more confusing and difficult to winnow because of lack of familiarity and trust, cultural biases, and language barriers.

When there is not enough information to do the job, parties may increase their capacity to get more information or decrease the level of information required.[35] Von Moltke's and Napoleon's "method of dealing with...uncertainty consisted not of imposing new and stricter controls but of reducing the amount of

information needed to perform at any given level."[36] Can basic information requirements for a coalition operation be determined? How much does each ally have to know about the other, about the whole? Who decides? When is the information necessary?

Technology. Many affects of coalition operations on communications are the same as those of past joint operations. There are interface and interoperability problems. Procedures developed during World War II to resolve problems have lasted for 40 years. "Many of those procedures are simple, common sense measures, such as the establishment of the Air Naval Gunfire Liaison radio nets, which are common features of joint operations. When more complicated exchanges are necessary, it is not unusual to see service components simply exchange liaison officers equipped with the necessary communications gear."[37] That was done again during the Gulf War.

In a coalition, allocation of frequencies is more complicated. Network development is affected by the compatibility and interoperability of available equipment, as well as by the quantity of equipment each nation owns. Secure communications is difficult—the flow of information is limited by who has secure devices. Nations with the capability may be uneasy about providing valuable information to less well equipped nations, fearing operational security (OPSEC) losses. Then again, do all nations place the same value on a given piece of information?

Any effort at interoperability must take into account computer hardware and its limitations; computer software, which includes programs and languages; military standards that address the meanings and formats of basic messages; and system interfaces for electronic transmission.[38] This has been difficult even among the U.S. Services. Past analysis of interoperability efforts for theater forces for what was then a more-than-30-year-old NATO inspired the following comment:

> Theater forces' command and control systems are not well tied together, top to bottom. They are not being exercised adequately under the expected conditions of war. Great sections of them will probably not survive the attack against them which is sure to come in war. For the typical senior commander, allied or U.S., whose forces must use these systems, they represent the largely unplanned splicing together of ill-fitting components which have been delivered to his

> forces by relatively independent parties far away who have coordinated adequately neither with him and his staff nor with each other. And they neither exploit the present capabilities of technology nor does the system for their development adequately provide that future systems will.[39]

The above passage was written in April 1983; it could be considered an accurate description of coalition command and control systems. If NATO, an established alliance that knew who the allies were, had this problem after more than 30 years, it would seem to call for new and imaginative approaches when planning coalition communications. This could also mean the need for better analysis to determine what is needed, and who must communicate with whom and by what means.

Language/terminology. When speaking of the language of communication earlier, the point was made that it is a problem to communicate when everyone does not speak the same language at the same skill level (or where the use of different gestures and body language varies in meaning). There is another consideration—terminology and meaning. Misunderstandings exist between the U.S. Services: "You send out a message to all units of a joint force to 'secure' their operations. An Army outfit will double the guard force and put out barbed wire, the Air Force will energize their crypto systems, and the Navy will simply pack up and go home!"[40] Although this could be considered an unsubstantial example, frequently, major misunderstandings can occur from similarly simple situaions.

Acronyms, used by all militaries, can add to the confusion, as can different terminology used by various national forces when they refer to the same thing. A coalition increases the need for a common communications language for command and control in operational direction. This is very important in matters specific to maps: boundaries, forward lines of troops, fire support coordination lines, no-fire lines, assembly areas, axes of advance, air corridors, and battle position.[41]

Support

Many other activities provide critical support to the armed forces, such as security, medical, food supply, engineering, religious, educational, postal service, financial and recreational. Each is

complicated by a coalition operation. In an integrated operation, what procedures are needed to ensure security of forces and equipment? How will personnel identification be verified?

In a coalition effort different standards of medical care affecting battlefield medicine may be observed by the participating nations. Treatment of coalition allies or even of POWs in U.S. facilities may require different procedures. How will AIDS and other infectious diseases complicate shared medical treatment? Will potentially different standards of medical care be considered? Will the United States let other nations treat U.S. forces? Will U.S. medical teams be prepared for medical problems no longer seen in the States?

In an integrated operation or in an operation with U.S. forces under another national command, will the United States be able to ensure the food meets U.S. standards? If other forces are commingled with those from the United States, will agreements be made to feed and otherwise support them? How will different forces be paid? How will vastly disparate levels of pay be handled? What cultural and religious restrictions apply? The same sort of questions can be asked with respect to all support areas. Many countries would not answer these questions in the same way as the U.S. military.

Notes

1. Coakley, *Command and Control for War and Peace*, 178.
2. Commission on Integrated Long-Term Strategy, *Sources of Change in the Future Security Environment*, 1.
3. Col. Jerome G. Edwards, et al., "Grenada: Joint Logistical Insights for `No-Plan' Operations," ser. 89-05 of *National Security Program Discussion Paper Series*, Cambridge, Mass.: John F. Kennedy School of Government, 1989), 3.
4. House Armed Services Committee, *New Era Requires Rethinking U.S. Military Forces*, News Release by Les Aspin, Chairman of the House Armed Services Committee, 6 January 1992, 20.
5. The White House, *National Security Strategy of the United States*, 13.
6. Patrick J. Bodelson and Kevin B. Smith, "Design for Tempo," *U.S. Army Aviation Digest* (1-91-2, March/April 91), 3-4.
7. Snyder, *Command and Control*, 133.

8. A readable, detailed review of the overall process is found in AFSC Pub 1, *The Joint Staff Officer Guide.* Material from chapters 5-7 was synopsized for use in this section.

9. AFSC Pub 1, *The Joint Staff Officer's Guide 1993* (OJCS, Washington, 1993), 6-4.

10. Maj. Gen. Schwartz, *Seminar on C3I.*

11. AFSC Pub 1, *The Joint Staff Officer's Guide 1991*, 6-7.

12. Ibid., 6-8.

13. Joint Staff Pub 0-2, 3-64.

14. AFSC Pub 1, *The Joint Staff Officer's Guide 1993*, 6-24, 6-25.

15. Ibid., 6-26.

16. Ibid., 5-36.

17. Joint Chiefs of Staff, *National Military Strategy 1992*, 12-13.

18. Cushman, *Command and Control of Theater Forces*, 3-58.

19. Ibid., 4-41.

20. Snyder, *Command and Control*, 46.

21. Beaumont, *The Nerves of War*, 41.

22. Cushman, *Command and Control of Theater Forces*, 2-18, 2-24, 2-25.

23. Joseph Albright, "Army issuing protection devices to reduce 'friendly fire' deaths," *Atlanta Constitution*, 17 September 1991.

24. Briefing from U.S. Central Command Staff to Tufts' School of Law and Diplomacy Delegation, MacDill Air Force Base, Fla., 9 March 1992.

25. Ibid.

26. Snyder, *Command and Control*, 32.

27. Code word restricting classified information: no foreign access.

27. Beal, *Seminar on C^3I*, 28.

28. H. Wayne Gustafson and Richard J. Kaplan, *A Survey of Coalition Logistics Issues, Options, and Opportunities for Research*, Report # N-3086-AF, prepared for the U.S. Air Force (Washington DC: Rand Corporation, August 1990), v, 9-10, 17.

29. Ibid., x, 2-3.

30. Ibid., 16, 42-43.

31. Ibid., v, vi.

32. Tony Evans, "British Airlift: Yesterday and Today," *Airlift: The Journal of the Airlift Operations School* 8 (Fall 1991): 4.

33. Don, *Allies and Adversaries*, 272.

34. Allard, *Command, Control, and The Common Defense*, 137.

35. Van Creveld, *Command in War*, 269.

36. Ibid., 146.

37. Allard, *Command, Control, and The Common Defense*, 192.

38. Ibid., 210.

39. Cushman, *Command and Control of Theater Forces*, 1-3.
40. Allard, *Command, Control, and The Common Defense*, 202.
41. Cushman, *Command and Control of Theater Forces*, 2-7, 2-20.

7. *Interoperability*

Interoperability must be the key if the unexpected is to be treated as an everyday occurrence.

C. Kenneth Allard,
Command, Control, and The Common Defense[1]

Interoperability exists "only when forces can provide or accept services from other forces."[2] Not all interoperability disconnects are purely technical. Organizational structure, tactics, and doctrine can also contribute to interoperability problems.[3]

Although there may be some advanced warning, an ad hoc coalition, by its very nature, deals mostly with the unexpected. The level of effective interoperability between coalition forces will affect command and control. Prior efforts to achieve interoperability were primarily focused on making all functional areas of combat interoperable between the U.S. Services. If that goal is applied to coalition forces, it indicates a need for common standards and procedures across the board. These would address operational control, fire support, air operations, combat service support, maritime operations, intelligence, communications, and command and control itself.

Coalition interoperability can also benefit from the same steps being taken to improve interoperability among U.S. military forces. These enhancements include management structure, common equipment, common standards, common doctrine and tactics, and common techniques and procedure.

Doctrine

Future ad hoc coalition alliances may include nations with different levels of military and economic power. It is possible that the United States may not be the chief leader, either by self-assumption or allied designation. Instead, the United States may have a more egalitarian and participatory role.[4] Established U.S. doctrine presupposes U.S. dominance in allied relationships;

much of it was written in support of Cold War philosophy. Readiness for participation in such an egalitarian type of ad hoc coalition suggests a review of key doctrinal points and determining the need for any changes.

"The 'procedures' in the DOD definition of command and control . . . are derived from experience, common sense, the lessons of military history and theory; and they constitute 'shared knowledge,' the common thread which ideally, unites the minds of commanders from the top to the bottom of the chain of command. The procedures range from Service doctrine, which govern the use of weapons systems, to the 'principles of war,' which guide commanders in their choices of strategies and tactics."[5] Most of this is lacking in coalition command and control. Application of these procedures during a coalition requires flexibility because other countries espouse different theories and styles of waging war.

Joint Doctrine

The Joint Chiefs of Staff do not publish "how to fight" doctrine. *Unified Armed Forces Action (UNAAF)* provides guidance on organization, roles and missions, and command relationships. The Services establish all tactical and technical doctrine that addresses combatant functions, organization, training and logistics requirements.[6]

There is an ongoing effort to rewrite and expand the joint publication system to incorporate more joint doctrine. Joint Pub 5-00.2 (*Joint Task Force Planning Guidance and Procedures,* September 1991) provides guidance about overall organizational structure for a Joint Task Force (JTF); responsibilities of operational command, planning and execution; possible headquarters organization, including specific functional requirements and their duties; as well as a specific (but not all inclusive) checklist of questions that should be considered by the JTF commander. This publication "provides guidance when a JTF is the command organization selected to execute a short-notice (time-sensitive) contingency operation."[7] How would guidance in this publication be affected by directing it toward a coalition operation?

The Joint Staff publication, *Unified Armed Forces Action (UNAAF),* specifies that care be taken to ensure that the joint

force commander not encroach on Service responsibilities. Requirements generated by joint operations include "Integration of effort by the armed forces. . . . Planning and conduct of operations and exercises. . . . Delineation of responsibilities for . . .operations." "Development of doctrine, procedures, material, plans, and training."[8] It has been the responsibility of the theater CINCs to develop theater-level publications and standard operating procedures for making the transition to coalition operations. Efforts have recently begun to incorporate coalition operations into joint doctrine publications.

Reviewers of *Urgent Fury*, the operation in Grenada, found that planners and decision-makers received insufficient training in logistics issues and that development of joint logistics doctrine was inadequate.[9] The following quote addresses joint operations, but it could also apply to coalition operations. "Missions that require the support of commanders of other services tend to get short shrift in hardware modernization and training time. The only commands that have a vested interest in correcting this situation are the CINCs."[10] If this is valid, what is the solution?

Coalition Doctrine

Because support of coalition operations is a national-level task, should there be doctrine to support coalition efforts? Development of doctrine to enhance interoperability and in support of coalition operations may be difficult. But, without "guidelines for decisions on command arrangement and subordination, support, priority, coordination, and a variety of other C^3 issues" it will become necessary for "each commander who might potentially be involved in contingency operations to think through the force employment and related C^3 alternatives in advance so as to be positioned to quickly make the relevant decisions when needed at the onset of contingency operations."[11] The commander's choices will be affected by whether the commander has "a 'minimalist' approach, which views joint [read coalition] matters as a kind of limited liability partner, or a 'maximalist' viewpoint, which suggests a synergy of joint [read coalition] forces wherein the whole is more than the sum of its parts."[12]

Because doctrine drives acquisition, force structure, and training, all of which are costly, some people think U.S. doctrine

cannot and will not be oriented to coalition activity. Others believe a central doctrine about coalition activity is needed as part of foreign policy and that it should not be left to or levied on the CINCs. Will lack of a central doctrine limit presidential authority? Many aspects of coalition warfare haven't yet been dealt with although initial efforts have begun. What will be the various Service roles? There are also questions about procedures that have to do with data, intelligence, information flow, command and control, and indirect fire support in a combined operation.

Technical experts in defense research and development use doctrine to define new requirements and guide developmental activity. Where will they find guidance about the requirements for coalition support?

Candidate topics for coalition doctrine may address getting in and getting out of an engagement, and creation of common operational procedures from potentially conflicting doctrine and procedures. Other topics may be guidelines for combined rules of engagement, and development of language work-arounds and procedures to disperse enemy order of battle and basic intelligence. Is there sufficient policy about useable and effective procedures for identifying friend or foe in any mission? Recognizing the potentially larger U.N. role, should aspects of United Nations' doctrine be incorporated in military doctrine or training? The Nordic countries provide specialized U.N. training at various staff levels. Other countries such as Canada, Nigeria, and Ghana include some U.N. specific training at their command and staff colleges.[13]

There are reasons, in addition to those concerning resources and force structure, why the formulation of coalition doctrine is difficult. The multinational factor adds complications. For example, "No two nations' military force has organized their air arms in exactly the same way."[14] Doctrine is produced out of experience and equipage, which varies greatly. Response to unique experience leads to doctrine that affects technological requirements. Among U.S. forces, for example, the Navy emphasizes the use of data and the Air Force emphasizes the use of voice.[15] Doctrine influences the characteristics of an organization, while "how to fight" procedures and styles are affected by shared values; this basic doctrine governs the mind-

set on command and control.[16] Is there a way to compensate for the lack of shared experience among coalition allies?

It has been said that doctrine should be taught.[17] "Doctrine in the primary sense means the definition of the objective . . . secondary is the procedure necessary to attain the objective"[18] "It is essential that this doctrine, in the popular phrase, be 'sold' to and lived by everyone concerned. Every member of an organization should not only know its doctrine, but . . . should make it the guide of all his acts. The selling job must be continual."[19] How would coalition doctrine be taught to potential allies? To U.S. forces?

According to the 1936 German Army manual, *Command of Troops*, "It is impossible to exhaustively lay down the art of war in regulations. The latter merely serve as guiding lines that must be applied in accordance with circumstances." "The advance of technology notwithstanding, the role of the individual remains decisive. His significance has been further enhanced by the dispersion characteristic of modern warfare."[20] How does one prepare the individual? Who is the individual in a coalition, anyway? Doctrine can conflict with the achievement of the mission. In that case, commanders choose emergency procedures until they can return to normal procedures.[21] While initial phases or preliminary efforts may familiarize allies with the doctrine, how will emergency procedures be decided?

The lessons of history do not bode well for the time needed to develop coalition doctrine. It "took 25 years to bring the Air Force and Army closer doctrinally and to be more cooperative."[22] NATO doctrine continued to be evaluated throughout its existence. Despite these examples, or perhaps because of them, development of coalition doctrine could be treated the same as other doctrinal evolutions.

For example, the idea of Low Intensity Conflict (LIC) began emerging as a separate concept in the 1960s, but for an initial period was not well incorporated into Armed Forces doctrine. After 3 years of dedicated effort, the new biservice doctrine was distributed to the field in early 1990. Although the name was not perfect and the concept was not totally understood, it was felt that those factors should not impede what needed to be done. Enough was understood to develop a usable doctrine. It is interesting to note that some of the LIC operational categories

include those that an ad hoc coalition may deal with: insurgency/counterinsurgency, combating terrorism, peace-keeping, and peacetime contingency operations. The published LIC doctrine is only a framework. It remains for the Services to more fully incorporate LIC. The Army plans to integrate LIC into specific Service "doctrine, training, leadership development, force development and material solutions." LIC will be "integrated into the Planning, Programming, Budgeting and Execution System for the future development of the Army."[23]

The Joint Staff could play a key role in developing and incorporating coalition doctrine. Until the Joint Doctrine office was formed in 1987, there was little emphasis on joint doctrine.[24] This office of the Joint Chiefs of Staff prepares a joint doctrine master plan. Coalition doctrine, or a unifying body of theory, could be similarly developed. Initial efforts have begun to address coalition operations under the title "multinational" operations. A model of the desired levels of interoperability can unify "the individual perspectives of the operational environment."[25] While this would reflect the U.S. view of coalition, it may be useful to address known or possible doctrinal differences with coalition allies. Even among the U.S. Services there is "a...subtle incompatibility..." because of "profoundly different command, control and particularly, communications philosophies."[26]

Because of the prime adversarial role of the former Soviet Union during the Cold War, its writings on command and control and doctrinal matters were studied at great length.[27] Few other countries ever received this kind of attention. Study of other countries can add much valuable information for use during potential future coalitions. How much does the United States know about the interoperability doctrines of other countries? Is this an area that calls for more attention from military colleges?

An alternative for developing broad guidance initially is "suitably packaged and disseminated historical studies, perhaps developed by the war colleges." Some think "these may be of more practical utility than carefully crafted doctrinal compromises."[28]

Doctrine for doctrine's sake is not necessarily the goal. Established doctrine may not fit all operational circumstances and an uncritical adherance can interfer in reaching sound operational decisions. However, "Doctrine can be used to

measure decisions as well as act as a stimulus for them."[29] Without well defined doctrine, how will coalition wargaming and training to prepare for an unexpected operation be designed or evaluated for effectiveness?

Coalition Training

Because exercises test "hardware, people, doctrine, training, and plans,"[30] they play an essential role in validating current concepts fostering interoperability. Where is responsibility most effectively placed? Will coalition exercises take place without top-down emphasis? Because this is currently a CINC responsibility, where will the resources come from?

Which nations will participate? Who will develop the scenario? Will the United States participate in a coalition exercise led by another nation? Does the United States have people sufficiently knowledgeable to simulate participation by another country? How can that be verified? How will exercises be held if testable items and information are not available? What criteria will be used? Because other countries often perceive the United States differently from the way Americans do, will critiques be allowed by close allies?

If, in addition to planning, theater CINCs are to run the training and exercises for potential coalition allies, they will need an appropriate full-time staff. Many of these would be knowledgeable area specialists. Are there enough area specialists? Are they tracked and well used? The need for more area specialists might dictate portions of military training. Should regional studies be emphasized more in professional military training at National Defense University, Joint Military Intelligence College, and the Senior Service Colleges? Expanded use of regional expertise at civilian universities and established security agencies (NSA, DIA, CIA) may also be beneficial.

Organizational decisions establish command and reporting relationships that, at a minimum, create requirements for communications. "The requirement to communicate creates the need not only for the physical links but also for staffs that share vocabularies and doctrine, and are able and willing to be effective communicators in the larger sense."[31] Training and doctrine play a large part in establishing a basis for shared

understanding. *Desert Shield* was training time for *Desert Storm*. How do planners train effectively for a coalition crisis?

Annual or biennial wargames, with various combinations of CINC staff participation, should highlight the impact of multiple crises and the ability of the United States to respond. What about a scenario that has the United States in an operation with allies and partners at odds with allies and partners of another operation in which the United States is simultaneously involved? The political-military implications are very complicated. Is the State Department adequately represented? Are there sufficient theater experts? Can the impact of events that occur elsewhere be assessed rapidly?

While wargaming is used to plan at the theater level, more choices could be added to the menu for friends, adversaries, and allies. Various hypotheses could provide the basis of scenarios for theater CINC planning staff. One possibility is the ten-year forecasts of trends in ballistic missiles with chemical, biological, and nuclear capability, the identification of future zones of conflict. Some hypothesize attempts to recolonize Africa; an African leader facing anarchy may become expansionist to retain power and take large areas of potentially arable farm land. What about Pakistan and India and the nuclear dilemma they've created? What would the United States do and on which side? How would the United States use force in situations similar to the crisis in the former Yugoslavia? Would a Somalia type situation be handled the same or differently?

Training Difficulties

There are several pitfalls and difficulties to look out for when planning an exercise. While they provide valuable information, "interoperability demonstrations are not the same as" actual operations.[32] The difficulty in conducting exercises that provide real operational problems as they are encountered in joint-fought combat will be exacerbated in an attempt to simulate a coalition operation. Many exercises have a primary operational orientation, and unknowns or "less important" concerns, such as logistics or C^3 availability, are assumed away. There are many more unknowns in a coalition exercise. Is there a way to provide a flavor of coalition warfare to everyone who makes the system work, as well as briefings on cultural differences, and so forth?

How will flexibility of mind be encouraged? How would representation from other countries be achieved?

Because of the difficulties involved in arranging coalition training, there is a danger that wargames won't reflect reality. Additional difficulties are deciding who to include as members and how to develop realistic scenarios. Exercises conform to doctrine, and without coalition doctrine or guidelines, participants can't fully train. Conversely, training and exercises develop and enhance doctrine. Without adequate wargaming in coalition warfare, doctrinal feedback is limited.

Exercise participants need to practice operations without communications and with jamming. Uncoordinated communication in a coalition may simulate the effect of these disruptions but work-arounds for these situations by the various members may be different. Ways are needed to test the command and control systems, as if in war or absolute reality, otherwise the system is not effectively evaluated.[33] This will be harder to duplicate for a coalition. How will allies be included in tests of the command and control system? Will feedback be provided to system developers? Just as in unilateral operations, the difference in winning isn't simply technology but the application of sound doctrine and operational training.[34]

Most students of command and control organization agree that computers and other decision aids are essential to daily operations: "So you've got to do two things with the staffs and commanders. You've got to make sure that they are trained (as differentiated from education) to be able to use the clerical capabilities of the machines and then you have to make sure that they're properly educated (as differentiated from training) to be able to recognize and think their way through problems in such a way that they can make profitable use of the opportunities that the machines have freed up for them to use their judgement and genius."[35] If unity of command leads to a combined staff, how would this kind of training be made available to all coalition staff? Would an imbalance in abilities among staff be acceptable? What if the commander was of another nationality and not as familiar with these tools?

Training Benefits

Despite the difficulties, both training of and with future allies can have many benefits. Allied training scenarios might identify interoperability concerns for equipment and for procedures such as identification, friend or foe (IFF), and determine intelligence products and basic information needed for decisionmaking. These scenarios could also familiarize allies with each others' rules of engagement, and standardize dispersal of information, such as the enemy order of battle, and data and report formats that may be used. Long-term relationships can be developed by bringing the senior staffs of future allies to the United States for training. How will candidates be identified? Will contact be initiated by the United States or by the other country? Possibly, portions of our doctrine can be passed to allies and efforts can be made to establish standard operating procedures or, at least, to improve familiarity with each others' procedures. Would the United States consider adopting another nation's procedures for a coalition?

An exercise command and control fusion cell at the CINCs that combines intelligence planners and operations planners can enhance scenario development and future planning. Would potential allies be asked to participate? What can be done to resolve intelligence security concerns? What criteria will be used to determine the intelligence data released—and to which countries? Can a tentative target list be created with allied involvement? Would it use information from U.S. or allied contractors? The fusion cell and other participants can practice many scenarios, such as all naval, all air, and so forth.

Training in theater operations could enhance intelligence reserve forces (and other functional areas), where possible. Planners can determine what databases, spreadsheets, and so forth, will be required for reports, instead of on-the-spot development. NATO has an intelligence conference to determine what intelligence reports are needed, what will be joint, and what will be allied. Likewise, the CINC staffs could work these questions out with selected allies. Because of the proliferation of personal computers, use of personal computers by the United States and some allies to produce these reports should be anticipated. Procedures would need to be developed to ensure information security and limit spontaneous use of personal computers, yet still achieve maximum benefit of their availability.

Would coalition allies be allowed to use their personal computers? What special security measures would be required? The same theater-level exercises can incorporate practice in battle-damage assessment (BDA), which is very different when precision weapons are used instead of conventional weapons. Are potential coalition allies skilled in BDA? What would they be expected to do in the intelligence and BDA area?

Although never simple, answers to many of the above questions are less complex when dealing with established alliances. Consideration of organizational structure may help identify people the United States wants to train and common procedures that may be developed. During efforts to improve joint communication, it was found that it may be more important to standardize procedures than to perform in the "best" way.[36] This may also apply to overall coalition operations. Money can be spent either for new equipment or for doctrinal training (which may reduce the need for new equipment).[37] When U.S. forces exercise in another country, the host population becomes educated about America, which may increase mutual understanding. Combined exercises can improve access, show U.S. interest and commitment, and convince foreign populations that the United States is an appropriate partner for future security requirements. And the U.S. military may learn something about their hosts' doctrine. Ours may not, after all, be "best" for future circumstances.

Lessons Learned

"Military doctrine offers itself as the fundamental truths of the military art. The search for valid doctrine should be, at its root, a search for the truth. Doctrine is developed through experience or by theory. The best doctrine (that is, the doctrine best suited to govern actions in the circumstances) results from intelligent evaluation of the past and the logical and creative application of lessons of the past to present and future projected conditions. It comes from the interaction between, on one hand, the practical experience gained from battle, exercises, tests, and wargames, and on the other, the intellectual activity of the military professional at his desk and in the clash of ideas with other professionals."[38] Who is doing this for coalitions?

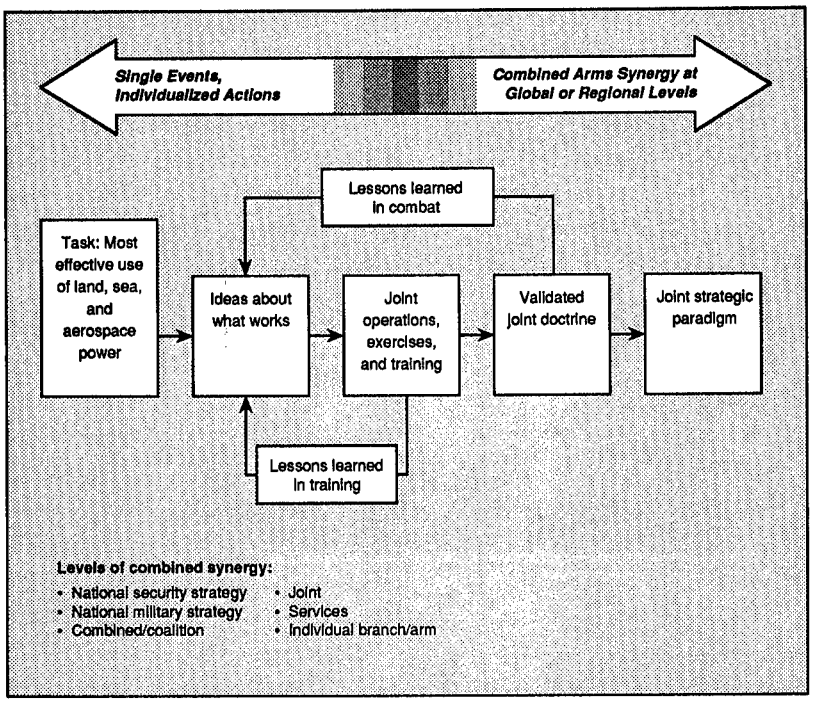
Some perceptual pitfalls associated with determining lessons learned were previously discussed, but there are also other associated difficulties. How will feedback be provided from actual or potential coalition allies? Will the information be out of date or otherwise irrelevant? Will potential sources of lessons learned be ignored because some fact about them is considered irrelevant, e.g., they occurred before the Cold War was over, or without U.S. participation, etc.? "Efforts to identify 'lessons learned' are useful but most people need to be able to view a problem 'from the inside' before they are ready to accept a 'lesson learned' distilled by someone else."[39] A review of lessons learned compiled by military staffs shows many items as simply "noted," with no action to be taken.

Figure 5 sums up the interaction of planning, doctrine, wargaming or exercises, and lessons learned. This applies across the entire spectrum of operations from single events or simple tasks to tasks of global and regional nature with multiple participants. At the left is the joint task as it is now. This joint operation is a specific response to a set of unique circumstances. "Moving toward the right side of the schematic: an organized effort is set in motion to plan joint exercises, training, readiness tests, and actual operations around the notion of testing prospective concepts about what will work in the field. The lessons learned from those experiences drive the doctrine refinements and formation process—which itself can generate tentative hypotheses that can be plugged back into the field evaluation process."[40]

Bilateral Interaction

Prewar functions and activities, such as attaches, military assistance missions, training, civilian affairs, and nation-building support, can enhance interoperability. Bilateral agreements cover status of forces, peacetime support, intelligence support, and financial transactions and are standard practice for all Services. The United States played a unique role in NATO's "multifaceted effort to improve alliance performance" which was "made possible by the broad range of bilateral agreements between the US and other member nations."[41] The same effect could be achieved if the United States is the common denominator in

Figure 5. *The evolution of joint doctrine and strategy*[42]



Source: Kenneth C. Allard, *Command, Control, and the National Defense* (New Haven, Conn.: Yale University Press, 1990), p. 261.

many bilateral agreements. The goal would be to expand to trilateral agreements, and so on. This would be similar to creating multiple alliances and adding a sense of "established" to the relationships. Remembering that alliances exist only because an external reason motivates members to cooperate, it is recognized that these multilateral relationships can fail. Ad hoc coalitions, however, should be more effective because of the groundwork laid.

Security Assistance

Bilateral agreements offer a means of improving interoperability and understanding through security assistance. They also create prewar coalitions that improve regional self defense and build interoperability of systems, facilities, and training. Besides weapons and supplies, "the transfer of command and control capabilities has been used to support the major political,

economic, foreign policy, and national security objectives of the supplier countries. In particular, there is a strong link between major international developments and security assistance programs that are improving Third World command and control capabilities."[43] However, there are several constraints on security assistance programs.

Inherent program obstacles. Although security assistance could support development of interoperability or common systems, there are obstacles. Security assistance programs are designed for peacetime; program activity may well cease in war, at least partially because the Joint Staff controls military sales in war.[44] Purchasers risk being cut off from needed resupply. Many countries do not wish to be bound to the supplier under these conditions.

When the United States sells advanced equipment, it generally attaches controls; U.S. technicians are required, key parts are removed, resupply depends on U.S. logistics, and so forth.[45] Often the United States retains ownership of part of the technology the buyer thinks is included, which further adds to buyer concerns about sustainability.[46] These issues, when coupled with difficulties in assimilating systems, training, and parts (the buying nations often "lack a career force of highly trained NCOs"),[47] may inhibit the purchase of U.S. equipment. Equipment quality and the high level of follow-on support from the United States still override these considerations for many nations, but that can easily change.

Political restrictions. Security assistance is also frequently constrained by legal restrictions; for example, the Pressler amendment as applied to Pakistan.[48] Government influences affect coalition building: How do you maintain a diplomatic toehold? How do you maintain contact in accordance with, but despite, legislative restrictions. Other countries have their own governmental restrictions. During the Cold War, "the propensity of one or more superpowers to be drawn into conflicts by providing command and control support to a Third World member has [had] increased."[49] Being drawn into conflicts may still be a problem, particularly with the growing use of satellites and other technology available from the United States that is useful to conduct of war. For example, although the United States

kept strict control of its satellites, it provided access and flow of information to the U.K. during the Falklands conflict.[50]

Technology transfer. International transfer of military weapons and systems is not new; it is a standard instrument of diplomatic, military, and economic policy. Arms transfer as an instrument of diplomatic policy has become more prominent during the 1980s, and is more politically oriented and less security related. Review of its effectiveness is mixed. According to a study on *Command and Control of Third World Forces: The Transfer of Military Capabilities* conducted under the auspices of the Program on Information Resources Policy, at Harvard University, this phenomenon has inherent dangers and has "proven not to be necessary nor effective in gaining influence over the policies and actions of foreign countries."[51]

Transfers include training, management services, and construction of facilities. The spread of weapons and the proliferation of weapons-related technology is a by-product of technology transfer. The following comments extracted from the same study on *Command and Control of Third World Forces* were originally intended for a discussion of issues that arms suppliers must face. When reworded, they could also apply to U.S. involvement in a coalition operation:

> Determining how to provide command and control capabilities without destabilizing a Third World region,
> Deterring aggressive moves by an adversary,
> Obtaining access rights to military facilities in the Third World,
> Avoiding entrapment in Third World conflicts when linked to one of the participants through security assistance programs,
> Providing advanced equipment to the Third World without jeopardizing their own military operations in the future,
> Maintaining authority over how the systems are used and preventing further transfers to third parties,
> Maintaining technological superiority in designing and producing new systems,
> Avoiding compromises in technological secrets that could increase the vulnerability of their systems,
> Negotiating production arrangements in the Third World without undermining potential export sales, and
> Maintaining a healthy defense industry.[52]

Third World countries (and others) are interested in improving their regional position and their ability to operate unilaterally. Their desire to improve their security position provides the United States an opportunity to further relationships with them and to build regional security agreements. This also could support development of interoperable or common systems. Therefore, in addition to being a means of achieving economies of scale for expensive weapons systems, "security assistance has been, is today, and is likely to be for the foreseeable future a major instrument of U.S. foreign policy."[53] However, one difficulty remains associated with technology transfer. Once the item is out of U.S. control, there is no retrieving it.

Coalition Logistics

A Rand Note discussing options for coalition logistics indicates that "it is at least imaginable that alliance war–fighting capability might be kept at measurably higher level than otherwise if coalition logistics practices were adopted on as extensive a basis as feasible." The Third World has only recently become a player in this arena. "Many openings exist for coalition logistics that are going unrealized or even overlooked; the payoffs from pursuing some of these opportunities could prove favorable but have not been analyzed; the political and economic obstacles to implementing coalition logistics can be, and historically have been, formidable; but there are seemingly irreversible trends at work that auger well for coalition logistics in the long run."[54]

Rand's use of "coalition" seems to accord more with the meaning of an alliance or more permanent relationships. Yet, many of their questions and concerns might be asked in the framework of today's more tenuous ad hoc coalition arrangements. Currently much of security assistance operates only in peacetime and there are limits on what security assistance can do. For example, mere ownership of a common weapon may not foster coalition logistics. "Coalition mutual support . . . cannot be conducted effectively on a voluntary, ad hoc basis . . . dependable transportation resources . . . data and communications systems" are also needed. Does the United States know enough about other national logistics "practices, . . . concepts, structures, and values in order to make a determination about viable options?"[55]

The "traditional American concept of RSI (rationalization, standardization, and interoperability), which has allies buying all their arms and logistics support from the United States, is no longer valid."[56] In fact, reverse security assistance is occurring. How will the United States deal with this in a sudden coalition where the supplier is neutral or even sympathetic to the other side?

Intelligence Sharing

Bilateral agreements can address other areas, such as intelligence. Intelligence sharing in any coalition framework is complicated by national sensitivities and military caution. Without intelligence sharing as part of a coalition it may be difficult to convince coalition allies of our trust and friendship, and to influence decisionmaking by coalition partners. Bilateral agreements related to intelligence sharing can establish a framework for intelligence sharing and begin to answer questions related to coalition intelligence functions. What emphasis should be placed on the different roles of intelligence in a coalition? What human intelligence capabilities are needed? What commercial and non-U.S. derived information is available for different regions? Historically the United States has expended the most efforts for parts of the world that were deemed most important for U.S. national security. Less emphasis was placed on regions that are today's and tomorrow's hotspots.

Bilateral agreements can lay groundwork to determine availability of common secure voice equipment and procedures to release common crytographic key material. Issues related to network computer operation and security for command and control functions could also be explored.

Command and Control Systems

> In November 1989, according to Brigadier General Richard Mallion, then Director of JTC3A [now JIEO, Joint Interoperability and Engineering Organization], of all our allies, Singapore was the 'best equipped to operate in concert with U.S. forces. . . . I'm not sure they will rush to the defense of North America, but if they do we can talk to them'.[57]

Any effort to enhance interoperability in the command and control area will be constrained by policy. Will interoperability be based on true interoperability ("information or services can be exchanged directly and satisfactorily between them and/or their users"—can be of varying degree[58])? Or will commonality ("possessing like and interchangeable characteristics enabling each to be utilized, or operated and maintained, by personnel without additional specialized training"[59]) be more important? What level of interoperability or of commonality is expected of a coalition? Will the allies make a commitment to make this work? Will they devise programs to implement interoperability? Will there be a unilateral U.S. effort, or will other countries be invited to participate? How could a unilateral U.S. effort succeed?

Interoperability of U.S. command and control systems was intended to meet internal requirements of the individual Services. Interoperability efforts were then expanded to joint U.S. use, with some consideration to the inclusion of long-term allies for specific system problems. An example is the development of Battlefield Information Collection and Exploitation System (BICES) for intelligence support within NATO. But although functional systems and up-to-date communications are essential, they are no substitute for an effective, operational command system.[60]

"A command, control and communications system includes (in addition to command facilities and intervening communications links) such elements as doctrine, training, and rules of engagement. The mix of 'static' components—like doctrine—and 'dynamic' components—direct communications and interactive access to computers—will vary from system to system."[61] The system also includes "the people—the commanders, staffs, and others—who use these means."[62] All command and control interoperability will be affected by the coalition composition as will all other factors within the command and control system. Because of the mix of countries, doctrine may no longer be 'static' and the 'dynamic' components may be even more variable. Command facilities and communication links may not be standard. Additionally, the people who use the command and control system may be much more diverse.

"Today the services are actively pursuing automation across the tactical equipment spectrum; consequently, joint and

combined operations no longer can rely on manual procedures to provide interoperablity."[63] Human liaison teams were used by the Navy and Air Force in the 1960s to ensure accurate communications.[64] Despite the pursuit of automation, similar liaison teams were used in 1990 by the U.S. and coalition forces during the Gulf War and for the same reasons. The solution to coalition interoperability may involve a combination of both ends of the human-technology spectrum.

"Modern computer and telecommunications technology creates, for military forces, problems of interoperability which are far more difficult to resolve than in the days before computers." Because of this, command and control systems are central to the issue of achieving interoperability of coalition forces. "Interoperability, broadly defined, is the greatest single problem in theater forces." An "architecture for interoperability" is needed "to work out an approach to system architecture and interconnects which can accommodate the needs for change and for interoperability of single-Service, multiservice, and multinational forces."[65]

Those who define architecture have found that systems cannot be considered in isolation because all are part of the web or matrix of command and control and must interrelate, including IFF (Identification, Friend or Foe), battlefield intelligence, close air support, and so on. "Neither is it possible, in theater warfare, to look only at U.S. systems. In battle, these will have to mesh with the allies' systems."[66]

According to LTG John H. Cushman, Ret. "the message is: Remember that the battlefield is a primitive and dangerous place. Keep it *simple* and *reliable*."[67] This benefits all commanders but may especially assist the commander of a coalition operation. It may also reduce familiarization and training requirements.

There is a tendency to look for technological solutions first,[68] but there may be other factors that affect command and control that are at least as important. Outmoded procedures may hinder the effective use of a command and control system.[69] The importance of determining the organization of a coalition command structure is significant. Organizational and leadership problems left unsettled can waste time, money, and effort in setting up a command and control system.[70]

"U.S. and other Western command and control literature seems to emphasize hardware, procedure, and staff coordination. In contrast, Soviet command and control thought gives central importance to the military commander's reaching a decision and communicating that decision to subordinates. Technological aspects or systems components are emphasized less."[71] This type of approach may be more important in determining coalition command and control system requirements than efforts aimed at determining a technological answer. The same approach may also preclude the possibility of an over-reliance on technology. The shared understanding by sender and receiver about possible situations may be just as important as computer-to-computer links in achievement of efficient and reliable real-time reporting.[72]

Systems Development

The following questions are pertinent in determining system requirements for any operation. They are more difficult to answer for a coalition and are in the realm of educated guessing for an ad hoc operation:

> What is the primary mission? What are the other important missions that the unit is called upon to perform?
>
> What are the units (or who are the individuals) who must communicate with one another to perform a unit's primary and other missions? What kinds of information are needed from them, and what kinds of information do they need in return? How fast and how often does this information have to be exchanged?
>
> What are the means required to achieve interoperability of the units that must be in communication? Are these means primarily technical (hardware, software, protocols, networks) or can the same ends be accomplished by specific organizational strategies (leadership, followership, management, teamwork, cohesion, procedures, training)? Finally, how can these technical and organization choices best reinforce each other?[73]

There are two types of systems to consider when thinking about system requirements: functional systems, which perform a limited but essential function or special purpose, and integrating systems, which tie together two or more functional systems.[74] Which will be most useful for coalition interoperability? Is commonality necessary or, as in the development of the Joint Tactical Information Distribution System (JTIDS), will it take longer to achieve, be harder to do, and meet with more resistance?[75] In 1986, with issues of joint interoperability still under discussion, LTG Clarence McKnight, then Director for Command, Control and Communications Systems, Organization of the Joint Chiefs of Staff, said it may be better to build interfaces rather than purple (joint) equipment, primarily because of expense.[76] Would the same apply to coalition interoperability?

The coalition interoperability cause may be furthered by encouraging established allies to use modular formats and infrastructure that includes open systems interconnection. However, the technology gap between rich and poor nations could interfer with improving interoperability. Perhaps the United States has been derelict in not working toward developing standards with Europe, Japan, and Korea in order to protect our own suppliers. This, however, may only be a reflection of the conflict of military and economic objectives. Part of the price of dealing with other countries is that they want more information and technology transfer. However, they still need training, software, and education to support those systems, all of which the United States can provide. Currently, the United States excels at systems; we can use this to stay ahead and make more high-quality user terminals cheaper, such as done with the Global Positioning System (GPS). The Department of Defense has been working toward development of an enforcement mechanism to validate interoperability.[77] Not having this process in place has been an obstacle to interoperability, yet such a mechanism could be perceived as interfering with the Services' acquisition authority chain.

Methods of controlling access must be improved if there is to be an emphasis on implementing a "pull" information system, in which field commanders can access information they want rather than being limited to receiving only what is provided. Can coalition allies and U.S. forces operate in an integrated command

center with such a system? A "push" system may still be necessary for reporting purposes, combined with a means for the commander to pull the information he desires.[78] How will coalition forces be included in this system? Would greater access to limited portions of information be considered? If the commander is from the United States, how will coalition forces input information and data? If the commander is not from the United States, how will the United States input data? What information would the United States input? Should the United States input data at all?

Full interoperability in today's environment requires that all allies have secure voice communication, including tactical secure voice that works across national boundaries.[79] It also involves rapid frequency allocation, interface and protocol standards, training with adequate battle simulation, computer aids, common language or translators for the equipment, and common interpretive criteria for the operators. The Joint Staff is currently working an initiative known as "C4I for the Warrior" that is intended to "provide seamless, secure connectivity . . . to all other operational elements and data bases (which are automatically updated and from which desired information can be pulled) . . . for any assigned mission."[80] Fielding of the prototype system, Global Command and Control System (GCCS), has begun. The C4I for the Warrior concept acknowledges the need to consider C4I connection to coalition forces. How much and where is this connection necessary? How will this be accomplished? Are there alternatives to the same level of interconnection that will require development?

If equipment is made available to coalition forces, methods of control during and after the conflict must be investigated, as well as a means of dealing with countermeasures. Will it be possible to use commercial items rather than controlled military equipment?

There are other considerations, some of them long-term efforts and some that might apply to all future operations, including unilateral U.S. operations. Efforts are already underway to make our own Services' communications interoperable by making systems more flexible. International standards should aid interoperability with allies. NATO has recognized the need to resolve C^3I interoperability issues and make maximum use of

commercial standards. Developmental plans could include greater use of leased commercial C^3I systems and services.[81] The Joint Interoperability and Engineering Organization (JIEO) is working to develop joint interoperability standards. Where possible, NATO standards are being migrated into bilateral agreements with Pacific and other regional allies and friendly nations. This will improve both U.S. and European interoperability with any of these potential coalition allies.[82] Does the United States have enough information about the command and control structure of other countries? Is there a growing database of known problems, capabilities, assistance that has been provided, frequency allocations, infrastructure, and contractors who have worked in the other countries?

As NATO moves to a more mobile force, there will be a need for a flyaway headquarters capability.[83] Could this concept be incorporated into coalition planning for the command center or coordination center?

If selected interoperable equipment is available and inexpensive enough or based on commercial standards, coalition interoperability may be easier to achieve. Many countries cannot spend lots of money on expensive interoperable items. Regardless, adequacy of U.S. marketing of Joint Surveillance Target Attack Radar System (JSTARS) and other technologically advanced systems has been questioned.[84] By means of bilateral agreements, the United States may be able to establish a trained infrastructure in cooperation with potential allies, resulting in improved interoperability, using U.S. equipment and procedures. Although there is some risk that allegiances might shift, as a result of the contact, the United States will know more about the nations, how they fight, and their equipment characteristics. This should aid in U.S. countermeasures.

Just as the wireless radio aided the development of long-range strategic control and operational procedures,[85] so can current or future technology affect the C^2 structure of coalitions. The reverse is also true; required coalition structure can drive new technology to produce interoperability.

The User

The question of who the user is deserves attention. Why is this so important for command and control systems? Other "hardware

items do their basic tasks pretty much the same regardless of their operational chain of command. Not so with command and control systems. These make up the web of means through which the overall commander and his operational chain of command direct and control the forces. Their fully effective performance, their full exploitation of all the possibilities of technology, fundamentally affect whether or not the overall commander will meet his basic responsibility—the 'performance of his military mission.'" For this overall commander "the electron will wear no uniform . . . electron . . . must mingle freely toward mission performance."[86]

It is the user's responsibility "to convey to the provider the user's situation and what he is trying to achieve...the basic responsibility of the provider is to advise and assist the user, and ultimately to deliver."[87] The provider responds to the user's requirements. But who is the user? It isn't the Service; they are providers. Rather, for U.S. forces it is the CINC of the theater where those items and forces will deploy. To use a real example, "Indeed, the German Army General who will in war command the multiservice and multinational command known as Allied Forces Central Europe is a more legitimate 'real user' of C^2 material bought and paid for by the U.S. Army or U.S. Air Force for their fighting formations in Europe than are those two Services as Services themselves."[88]

Who is the user in a coalition operation? "It seems quite evident, then, that the real users of any command and control system are those field units and troops who will actually use that system to accomplish their mission in battle, and their operational chain of command in the field."[89] If these are the real mission users, who will represent them to the provider? The difficulties in determining the users for an ad hoc coalition are even greater.

Under current procedures, the Services will continue to control dollars for research and development. Because of this they maintain contacts with Congress and industry, giving them a position of continuing influence on research and development efforts. "A multiservice/multinational theater forces command, no matter how large or longstanding, is transient, artificial, and weak in comparison."[90] One suggestion is, "The solution is ... not to give the multiservice/multinational commanders of theater forces the resources and their management. It is to give these

commanders adequate institutional means to influence these resources—specifically those which provide their webs of command and control."[91] What would be the role of the current multinational coordination mechanism, said to be a "veritable maze of agencies, communities, and working groups?"[92] If the commanders are known, or part of an established alliance coalition, this may be possible. If the commander is leading or will lead an ad hoc coalition, other solutions may be needed to ensure necessary representation for future ad hoc coalitions.

In addition to affecting design and function, command and control system user advocacy is important from a resource standpoint. When the functional, or user, interest and the money and policymaker interests are not in synch, actual development of the system may be jeopardized. "Because of the nature of service autonomy, it was not uncommon for command and control systems that would operate in a joint environment to take second place in the procurement process to systems that controlled the favored weapons wielded by the Army, the Navy, or the Air Force."[93] Perhaps a variation of CINC initiatives can be useful, in addition to special attention from the Joint Staff.

Complications

Planners of coalition operations have additional concerns. Would the development of standardized equipment and procedures help future enemies fight better? After coalition allies see the available equipment and information, they may want it also. Does the United States want to upgrade the warfighting capability of those countries that are less capable in terms of technology, equipment, and warplanning ability? Perhaps this is not a big concern. Even a long-standing alliance such as NATO still has standardization problems; nations prefer their own equipment and procedures. Resolving U.S. policy on technology transfer issues may be a precursor to resolving equipment interoperability problems. There are also the "have" versus "have not" questions. How would the denial of key technology affect developing countries? Will it slow down the country's development or will it drive them to other sources?

There are a variety of reasons for resistance to interoperability: concerns about the national nature of

communications security and intelligence sources, concerns about the home economy, and the cost of change. Reallocation of resources is difficult enough to accomplish in a joint environment, where costs are split among the Services of one country. It's harder to implement in a coalition environment. Even during the Cold War, NATO was often reluctant to pay for conventional or general purpose forces because of their cost. Defense is "a particularly complex 'economic good'."[94] After resources are used, they can't be used on something else; the notion of building coalition interoperability may need to be "sold" under the heading of other benefits.

"Commonality itself is a threat . . . . The reasons? Not only are the definition of requirements and the development of combat systems primary functions of the services, but the decisions throughout this process are made on the basis of military combat experience and service doctrine. Therefore, these are operational decisions intimately linked to basic service roles and missions, so much so that even the common procurement of minor items becomes a controversial de facto challenge to the technical expertise of the Services, their respective jurisdictions, and even their relationship to their civilian masters."[95] Compound this "threat" by adding national pride and various national procedures and institutions of coalition allies. The result is increased difficulties impeding the search for commonality.

Other complications are caused by attitudes and biases, some of which result from national heritage and history. Conflicting international laws and different national interpretations arise because the laws of nations have different bases; for instance, British common law, the Islamic Shar'ia, and others. There may be territorial disputes among potential coalition allies. Our legislature requires all the details before agreeing to any international agreement; others rely on a handshake and a promise. The two processes conflict. The United States has one international personality. Other nations can have multiple personalities to deal with. For example, the United Arab Emirates (UAE) has seven Emirs, each of them in charge of their portion of the UAE. Which one has the position and authority to make coalition agreements? How many countries would willingly sign up for the kind of scrutiny imposed by Van Crevald's "directed telescope?"[96]

It is easy to find U.S. biases acceptable. Other countries, however, may perceive the United States as arrogant because its attitude is: "Let us train you; our ways are better; the United States is dominant, therefore it sets protocol and contributes most forces." Many Americans automatically assume the United States will be leader if only one is chosen: "If the principle of unity of command is valid, then management responsibility for coalition mutual support ultimately should be vested either in one member of the coalition—without doubt, the United States—or in a combined agency."[97] This may, indeed, be the best answer, but that attitude may unintentionally select a direction and restrict options to enhancing interoperability.

People who have not previously worked on a problem may be most open to new ideas and should be called on for imaginative solutions. Both skilled planners and functional experts are necessary. But it is easy to be distracted by smaller goals that can be reached and that can become ends in themselves.[98] The goal of coalition interoperability may be lost both in residual effects of the Cold War mentality and in distractions, such as, the support of bilateral and regional security arrangements.

Another possible impediment is unwillingness to acknowledge the need for coalition operations. The following comment was made about revisionism, yet could reflect the attitude of those opposed to a greater emphasis on coalition operations. "Revisionists are often prejudiced, afflicted by tunnel vision, or searching for a new approach justifying publication. When using tunnel vision, they examine, with great detail, small parts of the whole and make erroneous deductions which lead to major erroneous conclusions."[99] Although dictionary definitions are basically neutral,[100] revisionism has a negative connotation for many people. In a similar way, some people are uncomfortable accepting coalition operations as an alternative on the menu of military options. To them, the questions that must be asked may appear to be twisting past scenarios to support the "new coalition operations bandwagon." However, there is an valuable warning within the above quote; to ensure that operations are studied in context, and not to make sweeping conclusions from the lessons learned from one operation. Open-minded review of historical coalitions may provide clues to the future of coalition operations.

The bottom line is to maximize U.S. military options in the face of a changing world and decreasing resources. To do this successfully may require far-reaching changes; or it may not. It won't be decided without additional unbiased study and thought.

Notes

1. Allard, *Command, Control, and The Common Defense*, 251.
2. Snyder, *Command and Control*, 110.
3. Linville, *Command and Control of Third World Forces*, 20.
4. Commission on Integrated Long-Term Strategy, *Sources of Change in the Future Security Environment*, 19.
5. Coakley, *Command and Control for War and Peace*, 25-26.
6. JCS Pub 0-2, *Unified Action Armed Forces (UNAAF)*, 1, 1-2.
7. Joint Pub 5-00.2, *Joint Task Force Planning Guidance and Procedures* (OJCS, Washington, DC, September 1991), I-1.
8. Joint Staff Pub 0-2, *Unified Action Armed Forces (UNAAF)*, 3, 1-3.
9. Col. Edwards, *National Security Program Discussion Paper Series*, 49-51.
10. James Winnefeld and Dana Johnson, *Command and Control of Joint Air Operations: Some Lessons Learned from Four Case Studies of an Enduring Issue*, Report # R-4045-RC, (Santa Monica, CA: RAND, 1991), xi.
11. Ibid., 65.
12. Allard, *Command, Control, and The Common Defense*, 254.
13. Major General Indar Jit Rikhye (Ret), Indian Army, Senior Advisor for United Nations Affairs, United States Institute of Peace, "The Future of International Peacekeeping," in *The Future Security Roles of the United Nations* (National Defense University: Institute for National Strategic Studies, 28 May 1992), 10.
14. Cushman, *Command and Control of Theater Forces*, 4-17.
15. Allard, *Command, Control, and The Common Defense*, 228-229.
16. Cushman, *Command and Control of Theater Forces*, 4-5, 4-5, 4-25.
17. Ibid., 4-12.
18. Carrington, *Command Control Compromise*, 22.
19. Ibid., 24.
20. Cushman, *Command and Control of Theater Forces*, 4-7.
21. Ibid., 4-4, 4-15.
22. Ibid., 4-32.

23. LTC John Hunt, "Emerging Doctrine for LIC," *Military Review* (June 1991), 51, 57-58, 60.

24. Cushman, *Command and Control of Theater Forces*, 4-8.

25. Joint Staff Pub 0-2, *Unified Action Armed Forces (UNAAF)*, 258, 260.

26. Winnefeld and Johnson, *Command and Control of Joint Air Operations: Some Lessons Learned from Four Case Studies of an Enduring Issue*, 37.

27. Beaumont, *The Nerves of War*, 45-47.

28. Winnefeld and Johnson, *Command and Control of Joint Air Operations: Some Lessons Learned from Four Case Studies of an Enduring Issue*, x.

29. Ibid.

30. Ibid., 67.

31. Snyder, *Command and Control*, 45.

32. Winnefeld and Johnson, *Command and Control of Joint Air Operations: Some Lessons Learned from Four Case Studies of an Enduring Issue*, x, xi.

33. Cushman, *Command and Control of Theater Forces*, 2-35, 6-110.

34. Allard, *Command, Control, and The Common Defense*, 262.

35. Stuart E. Johnson, "Command and Control Education and Research," *Seminar on Command, Control, Communications, and Intelligence* (Cambridge, MA: Program on Information Resources Policy, Harvard University, August 1990), 17.

36. Snyder, *Command and Control*, 74.

37. Coakley, *C^3I: Issues of Command and Control*, 106.

38. Cushman, *Command and Control of Theater Forces*, 4-13.

39. Snyder, *Command and Control*, 91.

40. Allard, *Command, Control, and The Common Defense*, 260-261.

41. Don, *Allies and Adversaries*, 10.

42. Ibid., 261.

43. Linville, *Command and Control of Third World Forces*, 98.

44. Gustafson, *A Survey of Coalition Logistics*, 18, 22.

45. Linville, *Command and Control of Third World Forces*, 65.

46. Gustafson, *A Survey of Coalition Logistics*, 19, 20.

47. Linville, *Command and Control of Third World Forces*, 66-67.

48. Under the 1985 Pressler Amendment, the U.S. President must certify each year that Pakistan does not possess a nuclear device if Washington is to continue giving military and economic aid.

49. Ibid., 79.

50. Ibid., 81.

51. Ibid., 27, 29.
52. Ibid., 26, 2-3.
53. Ibid., 3, 98.
54. Gustafson, *A Survey of Coalition Logistics*, 1, 4, 5.
55. Ibid., viii, ix, 15.
56. Ibid., ix, 26-27.
57. "Singapore Sings Same Song," *Defense News*, 20 November 1989.
58. Joint Pub 1-02, *Department of Defense Dictionary of Military and Associated Terms*, s.v. interoperability, 190.
59. Ibid., s.v. commonality, 79.
60. Van Creveld, *Command in War*, 259.
61. Snyder, *Command and Control*, 107.
62. Cushman, *Command and Control of Theater Forces*, 1-6.
63. Allard, *Command, Control, and The Common Defense*, 193.
64. Coakley, *C^3I: Issues of Command and Control*, 163.
65. Cushman, *Command and Control of Theater Forces*, 2-47, 2-48, 6-48.
66. Ibid., 2-29, 2-30.
67. Ibid., 2-60.
68. Ibid., 6-17.
69. Linville, *Command and Control of Third World Forces*, 101.
70. Allard, *Command, Control, and The Common Defense*, 252.
71. Linville, *Command and Control of Third World Forces*, 90.
72. Snyder, *Command and Control*, 29.
73. Allard, *Command, Control, and The Common Defense*, 251.
74. Cushman, *Command and Control of Theater Forces*, 2-26.
75. Allard, *Command, Control, and The Common Defense*, 236.
76. Clarence E. McKnight, "C3I Systems at the Joint Level," *Seminar on Command, Control, Communications, and Intelligence* (Cambridge, MA: Program on Information Resources Policy, Harvard University, Spring 1986), 18.
77. Policy documents that emphasize the requirement for joint C^4I interoperability and that lay the foundation for ensuring interoperability include: DOD Directive 4630.5, "*Compatibility, Interoperability, and Integration of Command, Control, Communications, and Intelligence (C^3I) Systems*," 15 November 1992, and DOD Instruction 4630.8, "*Procedures for Compatibility, Interoperability, and Integration of Command, Control, Communications, and Intelligence (C^3I) Systems*," 18 November 1992.
78. Van Creveld, *Command and Control*, 164.

79. Interview by Theresa Hitchins (15 July 1991); Deputy Director General, NATO Communication & Information Systems Agency, Lt. Gen. Myers, *Defense News* (16 September 1991), 54.

80. *C4I For The Warrior* (C4 Architecture & Integration Division, J6, The Joint Staff, 12 June 1992), 2.

81. Interview with Lt. Gen. Myers.

82. Conversation with Mr. Malcolm R. Billings, J6I, Joint Staff, 14 May 1993.

83. Interview with Lt. Gen. Myers.

84. Ibid.

85. Allard, *Command, Control, and The Common Defense*, 82-83.

86. Cushman, *Command and Control of Theater Forces*, 5-81.

87. Ibid., 5-53.

88. Ibid., 1-7, 1-9.

89. Ibid., 5-64.

90. Ibid., 1-12.

91. Ibid., 1-13, 1-14.

92. Ibid., 5-91.

93. Allard, *Command, Control, and The Common Defense*, 130.

94. Don, *Allies and Adversaries*, 37, 236.

95. Allard, *Command, Control, and The Common Defense*, 133.

96. Snyder, *Command and Control*, 33.

97. Gustafson, *A Survey of Coalition Logistics*, 53.

98. Jervis, *Perceptions and Misperceptions*, 201, 234-235.

99. Col. Terence H. Berle, "Be Wary of Revisionism," *Air Force Journal of Logistics* (Fall 1991): 19.

100. One of the dictionary definitions of revisionism is "a departure from any authoritative or generally accepted doctrine, theory, practice, etc." (*American Heritage Dictionary*, 2nd ed., s.v. revisionism, 1058) Another is "advocacy of revision, as of original doctrine or treaty"; revision is defined as the "act of revising; re-examination or careful reading over for correction or improvement . . . a seeing again; a rebeholding." (*Webster New Unabridged International Dictionary of English Language*, 2nd ed., (Springfield, MA: G&C Merriam Co., 1960, s.v. revisionism.)

8. Where to Next?

> [There are] *seven principles for guidance in a period of nonlinear change: face facts, recognize ignorance of the future; apply geostrategic priorities for fault-tolerant planning; recognize that the long term is a succession of short terms; sustain or acquire flexibility to adjust to changing circumstances; learn from the past; play to American strengths; and reexamine assumptions, and reshape rationales on defense policy and strategy.*
>
> Colin S. Gray
> "Defense Planning for the Mystery Tour"[1]

The divisive forces within a coalition must be overcome by powerful motivation for the coalition to be successful. Strong national interests must support participation in the activity. Dealing with the unknowns of coalition planning will always remain a challenge. However, through planning and the application of already known command and control principles, preparation for command and control of coalition operations can be improved. There are many actions that the Department of Defense can take to help the U.S. military prepare to meet whatever the future brings. Regardless of preparation, however, each case brings its unique situations, and the U.S. military must rely on its flexibility in doctrine and adaptability of procedures.

Why Do Coalition Planning?

There are compelling reasons to plan seriously for future coalition operations. Alliances, coalitions and a new United Nations role, arms control, proliferation, security, and counternarcotics efforts, which all may require military support or involvement, are highlighted in the political agenda of the *National Security Strategy* (1991).[2] Coalition efforts are potentially useful in dealing with most of the significant forces affecting the strategic landscape. Including the capability to fight with an ad hoc

coalition operation as the national strategy calls for,[3] will require an investigation into coalition operations to determine how we can enhance that capability.

A review of patterns of conflict shows that "since 1945, approximately 125 to 150 conflicts have occurred, with over 90 percent of them being fought in the Third World. War in the Third World ranges from guerrilla conflicts to 'modern' conventional war. . . . More than a third of these conflicts have been fought with foreign participation."[4] Although the United States participated in only a small number of these conflicts, the possible increase in U.N. intervention activities and the increasing world economic interdependence point toward the likelihood of U.S. involvement in a future conflict.

"In an analysis of wars fought in the Third World, Stephanie G. Neuman, director of Comparative Defense Studies Program at Columbia University, concluded that without exception, 'a preponderance in numbers and military equipment has not ensured victory.' In all cases, other factors were decisive. These included strategy, tactics, training, and command and control. Superior command and control has been decisive."[5] Although the United States has the "numbers and military equipment" overall, the procedures and training (and any specific equipment) to support coalition command and control are in early stages of development.

In a study of previous conflicts, it was found that when there is "time to learn from mistakes and to either coordinate their efforts or ensure they did not interfere with one another," the different Services could overcome "all manner of [inter Service] tactical problems."[6] But what happens when there isn't enough time, and the other Service doesn't speak English?

While "decision-makers may not think about how they will react because the choice is politically or intellectually too difficult", they will also be affected by domestic issues, the event itself, and their personal reaction to the event.[7] Despite the number of Americans talking about less military involvement around the world, the military must be ready to offer political leadership a coalition alternative. The complexity of coalition operations is such that advance planning is needed to ensure that the U.S. military is prepared for the myriad of options and has the capabilities necessary to participate.

After the success of the mission, the ultimate bottom-line reason for coalition planning is to prevent unnecessary loss of life. The government may waste resources and lose opportunities and have political problems, but those who die pay the maximum penalty. Not to minimize in any way the human tragedy of friendly fire incidents, there can also be other ramifications in a coalition operation. The British friendly fire deaths during *Desert Storm* resulted in political, as well as human, problems: "Britons find deaths by U.S. 'friendly fire' unlawful . . . jury had found that the U.S. pilots 'committed manslaughter'."[8]

Unity of Effort

Perhaps the most obvious requirement of an effective coalition is unity of effort. According to JCS Publication 0-2, *Unified Armed Forces Action (UNAAF)*, "unity of effort among Military Service forces assigned to unified or specified commands is achieved by exercise of operational command (OPCOM), by adherence to common strategic plans and directives, and by sound operational and administrative command organization."[9] This goal could be expanded to encompass coalition operations as well.

In a RAND study on *Command and Control of Joint Air Operations*, unity of effort is defined as "an overarching principle that encompasses solidarity of purpose, effort, and command. It directs all energies, assets, and activities, physical and mental, toward desired ends." This definition implies that advance planning is necessary. Additionally, "Unity of command is one of several necessary steps to achieve unity of effort." The study found that different Service experience leads to "different doctrine, different interpretation of the unity of effort principle, and largely incompatible views in the unity of command and the conduct of joint operations."[10] In the same way different national experiences cause doctrinal and procedural conflicts that can impede effective coalition command and control.

Although a major objective of organizational decisions is unity of effort, the question remains: What efforts must be unified, and what elements of command must be unified?[11] The study on *Command and Control of Joint Air Operations* found that besides the organizational structure that affects "unity of command and,

in the absence of such unity, the command arrangements that were utilized," there are other supporting elements of unity of effort. To affect "the quality of joint attack and defense planning in exploiting the special capabilities of each Service, "knowledge of the partners and combined planning are necessary. "The quality of execution decisions and joint operations: their timeliness, their utilization of available information, and their improvisation in the face of uncertainty and adversity" will be affected by doctrine, the command and control systems in use, effectiveness of combined wargaming and national characteristics. Security assistance programs, training, resource availability, and technology development and transfer can affect "the degree of readiness and tactical compatibility among the forces of the different Services, as applied to equipment, training, and organization."[12]

Precoalition study and analysis of questions related to unity of command can assist doctrinal development concerning this area. Although the following questions come from the study on joint air operations, they are applicable to coalition or combined operations:

- What degree of unity of command is required to achieve unity of effort?
- When is unity of command not essential to effective operations?
- When is there no need for a single commander to control all assets?
- When can combined task forces be formed out of national assets and made directly responsible to the theater commander and not the respective national commander?
- When can units of one nation be placed under control (or even command) of an officer of another nation?[13]

The Impact of People

But once we include the human mind as part of any C^2 system we must include every mind, from that of the force commander, to that of the radar operator. . . . we unavoidably introduce the factor of the quality of these minds . . . also introduce the matter of doctrine, or way of fighting—the thread of common outlook and method (sometimes complicated by culture and upbringing) that is needed if these minds are to function in reasonable harmony . . .

> extraordinarily complex system . . . and we introduce training and development of the people in the system.[14]

The above addresses almost all the human considerations affecting coalition command and control: mind-set and cultural impact, doctrine and training, procedures, and leadership. Misperception, misunderstanding and human response to uncertainty and tremendous information flow can complicate coalition command and control. Conduct of military psychological operations in a coalition situation may be complicated by the concerns of coalition allies about cultural misrepresentation and exploitation. Language differences, different meanings ascribed to a word, and different ways of saying the same thing can also affect coalition command and control.

Principles of Planning

It is difficult to plan without a definition of the mission and function of coalition partners and a determination of the desired level of unity of command in execution and planning. The top commander is concerned with the whole operation. "Commanders among other things will try to achieve (1) a common perception of the situation, (2) a common understanding of the mission, (3) a common understanding of how to operate, and (4) teamwork through experience." This is a challenging target for planners because "it is difficult indeed to achieve this in peacetime when the full system is rarely exercised and cannot operate as it will in war."[15] It is more difficult to achieve for a yet to be determined coalition.

Can planners decide "what are the elements that were so critical they had to be managed centrally and those so diverse they had to be left to commanders at progressively lower echelons?" This would affect the structure, coordination requirements, and level of integration. A collateral principle is "that those responsible for carrying out a policy should have a voice in framing it."[16] This is hard to achieve for an ad hoc coalition, but perhaps through bilateral agreements and exercises, the important questions can be aired.

Can planners apply "DOD principles of integrated logistics support (ILS) in an international setting and with an eye to

coalition warfare?"[17] Some possibilities include addressing forward depot support, weapons-system-specific combat support, and logistics support for codeveloped or coproduced weapons systems.

Is Coordination Sufficient?

The problems of unity of command in Korea "were papered over with a compromise called 'coordination control.' Unfortunately, the term 'coordination control' had no agreed meaning."[18] Likewise, during the Gulf War, command was coordinated rather than integrated. In actuality there were two command centers, one U.S. led, the other Saudi led. The final arrangement was another coordination arrangement, the Coalition Coordination, Communication and Integration Center, or the C^3IC. The C^3IC was the location where the two command centers interfaced and coordinated the actions of the forces under each command center's purview.[19]

The C^3IC was established in response to the situation at hand. It took from the beginning of August until the second or third week of September until a coalition war room was set up; more than a month after the operation started. While the delay is perhaps explained by the need for political maneuverings to set up the coalition, it is ironic that the Saudis already had their own command center, without the allies. The requirement had not been anticipated and there were no predetermined procedures or organizational guidelines. Comments from the flag officers involved indicate they would have preferred a single war room to the separate U.S. command center and coordination center. Afterward the chief U.S. representative to the C^3IC indicated it would have been useful to have prior thought given to this possibility.[20]

What Command and Control System?

Rather than "what can you do without, what do you need to know"[21] is becoming a crucial question in determining command and control requirements. A coalition operation complicates the answer. Organizational decisions establish command and reporting relationships that create requirements for communications. These requirements are not only physical links

but also staffs capable of communicating in the broader sense. With modern communications capabilities, the movement of information requires standardization in transmission and reception.

The organizational structure of services (or countries) affects their approach to modernization and fosters different understandings of what command and control seeks to accomplish; impacting operations with other forces.[22] The possible lack of communications interoperability, depending on the countries involved, also affects command and control.

Efforts to achieve command and control systems interoperability encompass three broad areas: procedures included in doctrinal publications and standard operating procedures (SOPS), both of which are used in training; messages, including vocabulary, message format, and circuit procedure (common crypto keying, allocation of radio frequencies); and hardware, including signal interface standards.[23] Technology is making remarkable advances, but there is no crystal ball to predict who the next coalition partners will be. This leaves the United States evaluating possible allies and finding ways to maximize options.

In his study, *Command and Control of Theater Forces: Adequacy*, John H. Cushman refers to "the narrowly based, Service-oriented outlook which comes naturally and institutionally to a Service and which is most difficult to eradicate."[24] Given this view, it is hard to be optimistic that the Services will voluntarily consider equipment, systems, and procedures to support coalition operations. Achieving this type of effort may require specific emphasis and support from top leadership along with their clear expression of it as a goal.

Overall Interoperability

Interoperability is one key to a successful coalition operation. This is not just interoperability in equipment features but also in procedures, language, and training. Does the United States know enough about other countries to plan coalition operations effectively?

Presuming a major U.S. role, how can we facilitate agreement for desired doctrinal policies and procedures by coalition

members? How can we make it easy and show it is in their best interest, that it benefits them? When can or should the United States agree to adjust policy and procedures to satisfy its partners? What is flexible during planning? Is there a difference between what is done in peacetime and what is done during a crisis? Some may agree to policies during a crisis that wouldn't be acceptable during peacetime. In what areas can the United States be flexible during a crisis?

Increased coalition preparation, planning and training will begin to ensure military doctrine and policy reflects all options in support of overall U.S. strategy. It took 6 years for the changes advocated under the Goldwater–Nichols Act of 1986 to be fully implemented. It is likely to take time for changes necessary to improve coalition operations to become reality.

What Next?

Generally, experience must combine with supporting rationale for doctrine and organizational design to be developed.[25] There have been few true short notice ad hoc coalitions in recent history. Many U.S. "coalitions" were actually longer term alliances and well established, many created because of the Cold War. However, valuable lessons can be learned from a study of a coordinated effort involving the United States and one or more allies. Even peacetime activity can provide clues to interaction and organization, doctrinal differences, and so forth.

Study of historical coalition activity, emphasizing command and control aspects, can provide additional insight into steps the military can take to improve its command and control during coalition operations. If the lessons learned are kept in perspective and in context, acknowledging the numerous influencing factors, the dangers of faulty conclusions can be minimized. Sometimes, "improving command and control is for the most part done by taking a number of fairly small measures, rather than by acquiring some large new capacity."[26]

Increased involvement in formerly neglected (not Cold War–relevant) areas of the world can provide knowledge in support of coalition-building efforts. There has already been an increase in U.S. activity in Africa: medical assistance; aid with construction projects; and training in weapons handling,

parachute jumping, and counterinsurgency efforts. Most of these activities are "nation-building" and are less support than the military would like to be able to give because of money constraints.[27] However, humanitarian pressure and world need may drive further U.S. involvement in these type operations. Beginning in late 1992, the U.S. intervention in Somalia under U.N. auspices for the humanitarian purpose of food distribution is a recent example. It is also a good example of complications that can occur.

A key point that surfaces repeatedly in after-action reports is the necessity to train as you expect to fight. Referring to several military expeditions over the relatively recent past, it was noted that we "do not train as we actually went to war".[28] Training for coalition warfare as we expect to fight will be an even more complicated challenge.

With the reduction in military resources, "the concept of reconstitution requires that our military retain those features that would be most difficult to reconstitute..."[29] In addressing coalition operations, reconstitution may need to include elements that take time to develop; proficiencies such as language skills, foreign contacts, training programs, and area specialists. It seems clear there will be more problems in regions we know little about. For this reason priority could be given to programs that recruit young analysts and provide language training. Once recruited, they need the opportunity to develop indepth knowledge about possible future regional powers and their border countries. Future powers include Japan, China, Brazil, and India, among others.[30]

Language-qualified liaison teams were used effectively in World War II to communicate, and they were essential during Desert Storm, as was the Coalition Coordination, Communication and Integration Center. Planning such efforts means faster crisis response but necessitates prior coordination with future allies as part of the CINC-run exercises and training forums. As a reservoir of forces, what role could the reserves have? Should the use of modular assets similar to those used by the Joint Communications Support Element be expanded? How do we ensure the availability of current worldwide maps, develop an expanded intelligence database and add more human intelligence (HUMINT) sources? Is there as way to emphasize the training of language-qualified personnel? How do we make sure predictions and analysis of

communications capabilities in the area are current for U.S. and coalition partners and enemies? How do we have ready plans for applying countermeasures against an enemy's systems? All these questions are possible strategies that can enhance readiness for any operation.

The Future

Political leaders will decide what role the United States is to play in the world. If they want the United States to be the dominant world force into the 21st century, the U.S. military needs to be prepared to support the decision.

Lessons from the Korean War can easily apply to today's world, to coalition operations, and to coalition command and control: "The need for joint training, planning and doctrine in peacetime, the importance of flexibility in hardware, tactics, and command and control modalities, particularly in communications, the continuing utility of so-called obsolete hardware when facing an enemy with less than modern forces, the importance of the personal involvement of senior commanders in resolving interservice issues or in narrowing the differences between them."[31]

Substitute "coalition" for "joint" and "allied" for "interservice," and we have a reasonable summary of this study. Considering the statement is about an event that occurred 40 years ago, perhaps there really isn't anything new under the sun.

Notes

1. Colin S. Gray, "Defense Planning for the Mystery Tour: Principles for Guidance in a Period of Nonlinear Change," *Airpower Journal* V, no. 2 (Summer 91): 19.
2. The White House, *National Security Strategy of the United States*, (August 1991), 13-18.
3. Joint Chiefs of Staff, *National Military Strategy* (1992), 1, 9.
4. Linville, *Command and Control of Third World Forces*, 38-39.
5. Ibid., 39.
6. Winnefeld and Johnson, *Command and Control of Joint Air Operations; Some Lessons Learned from Four Case Studies of an Enduring Issue*, 23.
7. Jervis, *Perception and Misperception*, 54-55.

8. "Britons find deaths by US 'friendly fire'unlawful," *Boston Globe*, 19 May 1992, 2.

9. Joint Staff Pub 0-2, *Unified Armed Forces Action (UNAAF)*, 1-1.

10. Winnefeld and Johnson, *Command and Control of Joint Air Operations*, v, vi, 3.

11. Snyder, *Command and Control*, 43-44.

12. Winnefeld and Johnson, *Command and Control of Joint Air Operations*, v.

13. Ibid., vi.

14. Cushman, *Command and Control of Theater Forces*, 2-33.

15. Ibid., 2-23.

16. Allard, *Command, Control, and The Common Defense*, 129-130.

17. Gustafson, *A Survey of Coalition Logistics Issues*, vi.

18. Winnefeld and Johnson, *Command and Control of Joint Air Operations: Some Lessons Learned from Four Case Studies of an Enduring Issue*, 26-27.

19. Maj. Gen. Schwartz, *Seminar on C3I.*

20. Ibid.

21. Coakley, *C^3I: Issues of Command and Control*, 311.

22. Allard, *Command, Control, and the Common Defense*, 149.

23. Snyder, *Command and Control*, 110-111.

24. Cushman, *Command and Control of Theater Forces*, 6-57.

25. Ibid., 4-11.

26. Ibid., 7-15.

27. William Matthews, "U.S. Military Shifts Focus, Resources to Africa," *Air Force Times* (8 June 1992): 24.

28. Maj. Stephen J. Hagel, "Capturing Logistics Data," *Air Force Journal of Logistics* 16 (Winter 1992): 4.

29. Department of the Air Force, "New U.S. Defense Strategy," *Policy Letter from the Office of the Secretary of the Air Force*, September 1991.

30. Commission on Integrated Long-Term Strategy, *Sources of Change in the Future Security Environment*, 20-21.

31. Winnefeld and Johnson, *Command and Control of Joint Air Operations*, 39.

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